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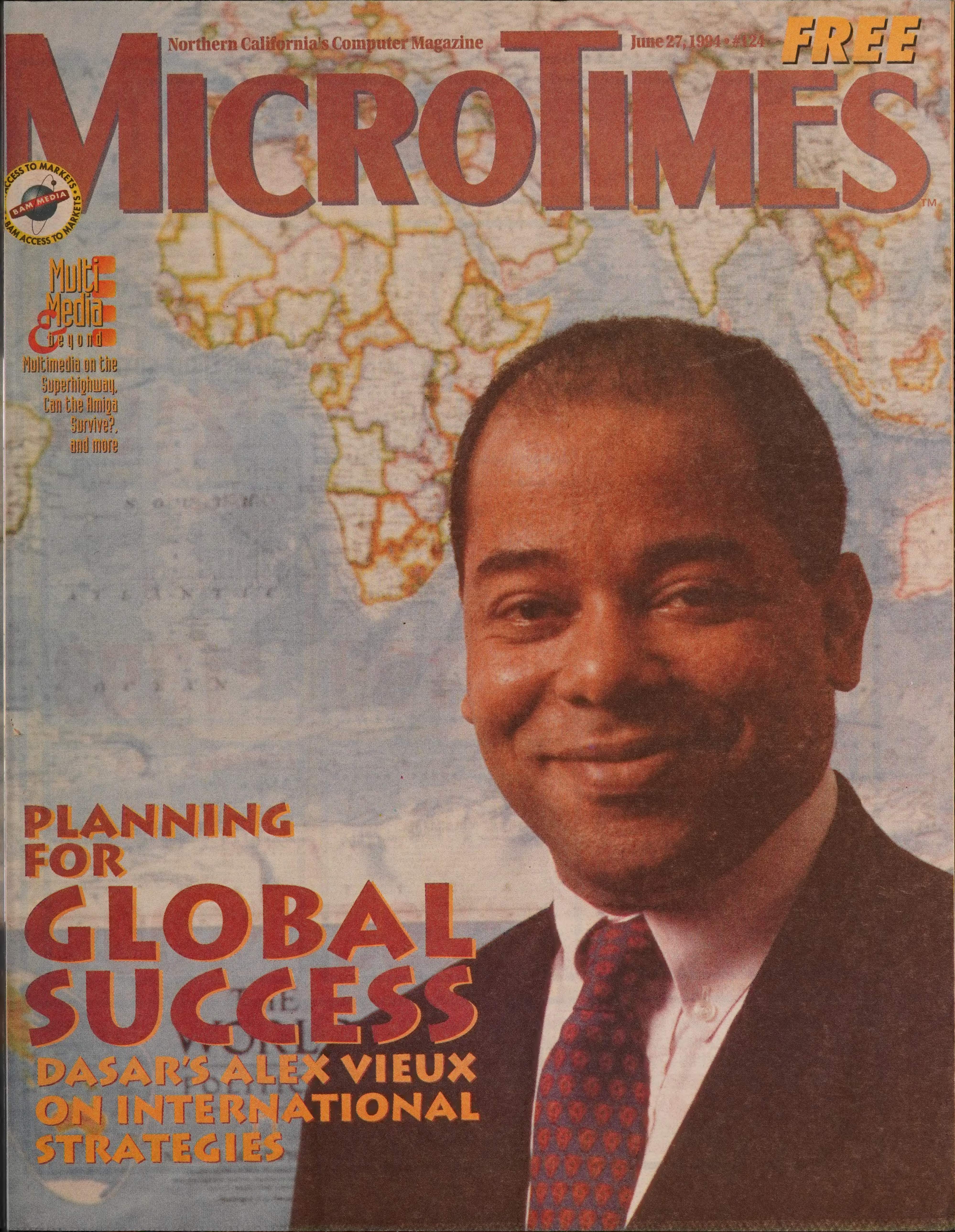

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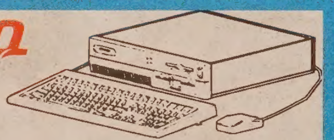

486SX 33MHz

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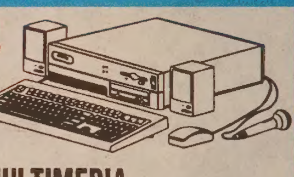

486SX 33MHz MULTIMEDIA

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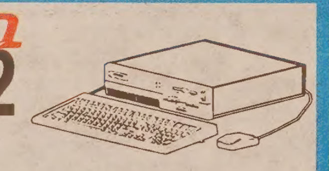

486SX2 66MHz

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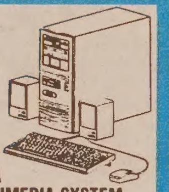

486DX2 50MHz MULTIMEDIA

PRESARIO 850 W/CD ROM 340MB MINI MULTIMEDIA SYSTEM

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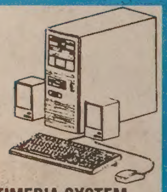

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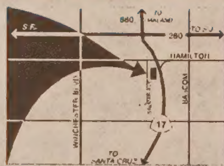

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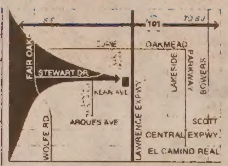

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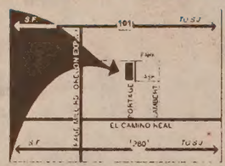

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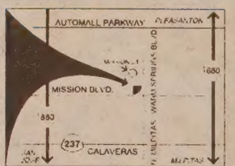

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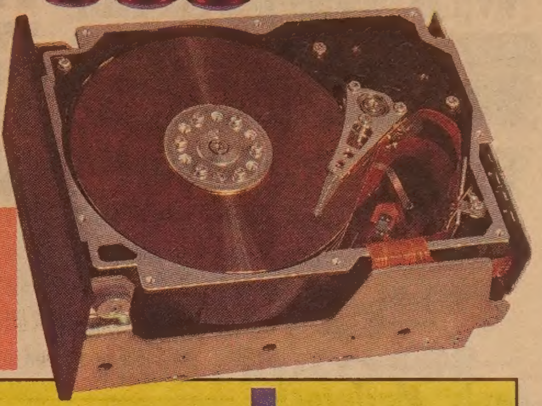

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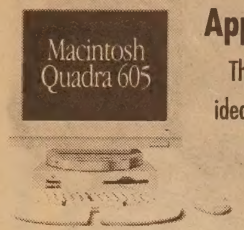

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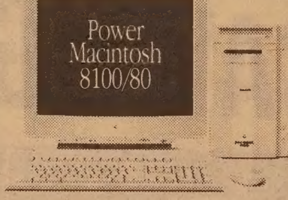

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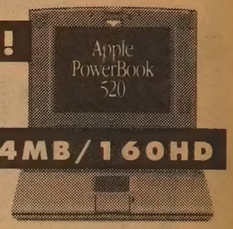

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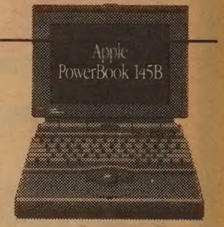

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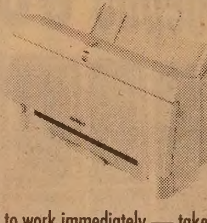

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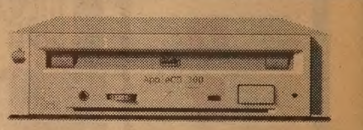

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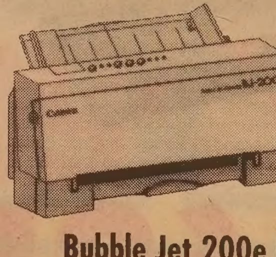

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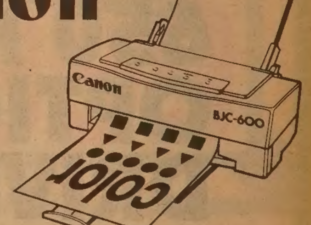

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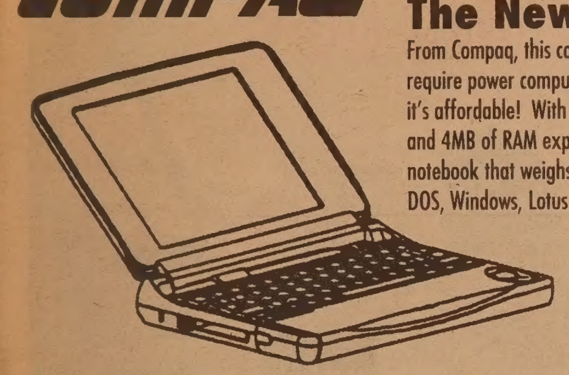

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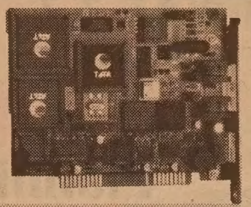

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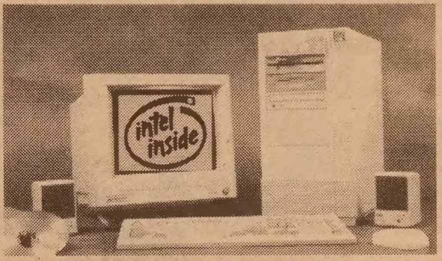

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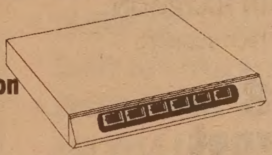

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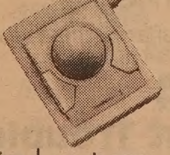

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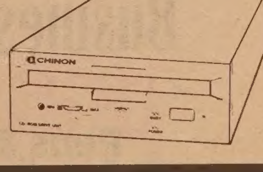

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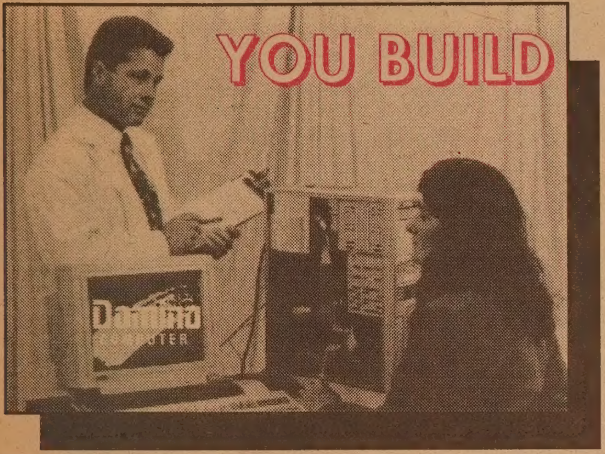

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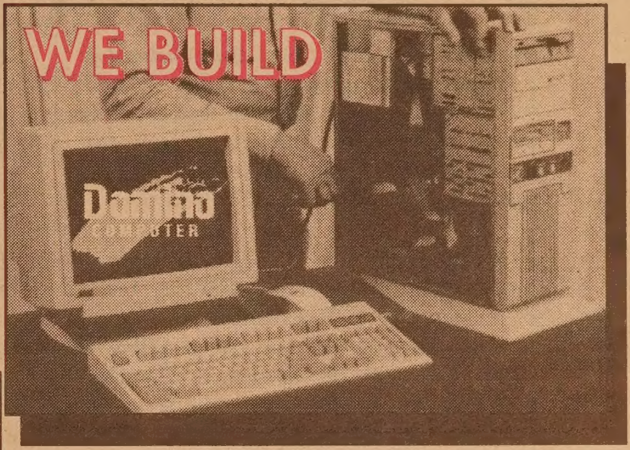

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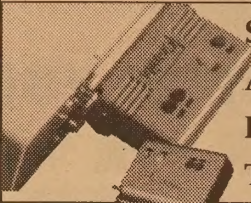

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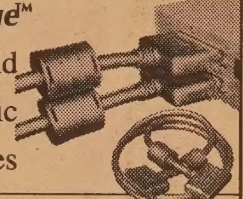

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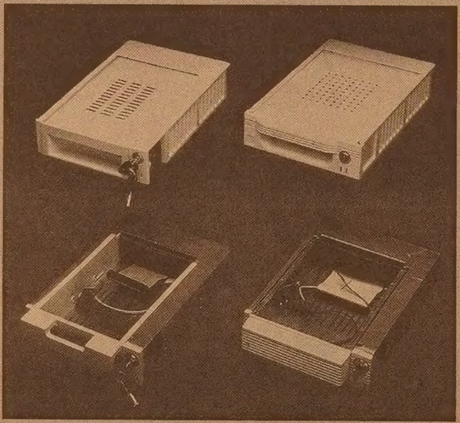

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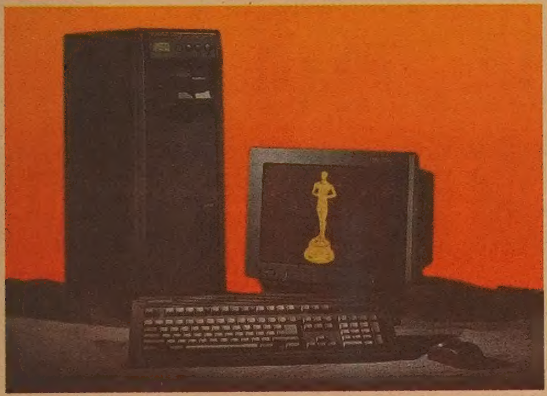

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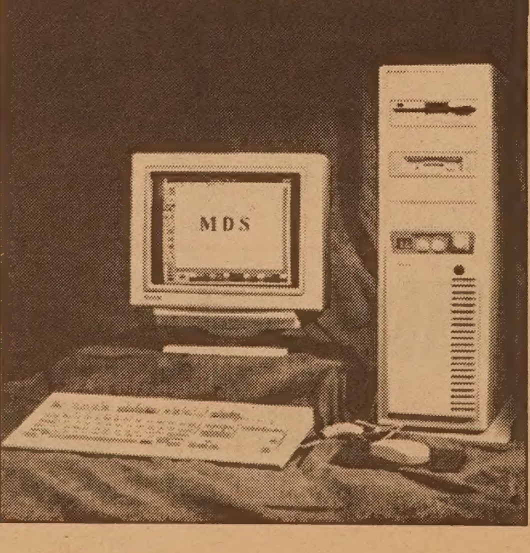

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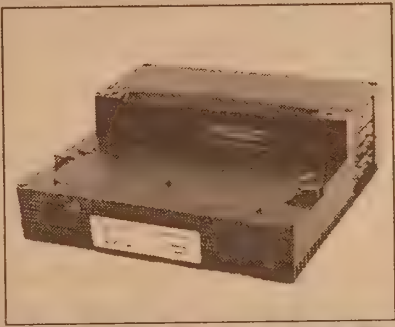

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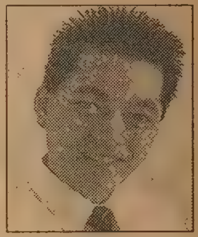

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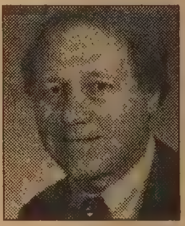

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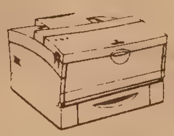

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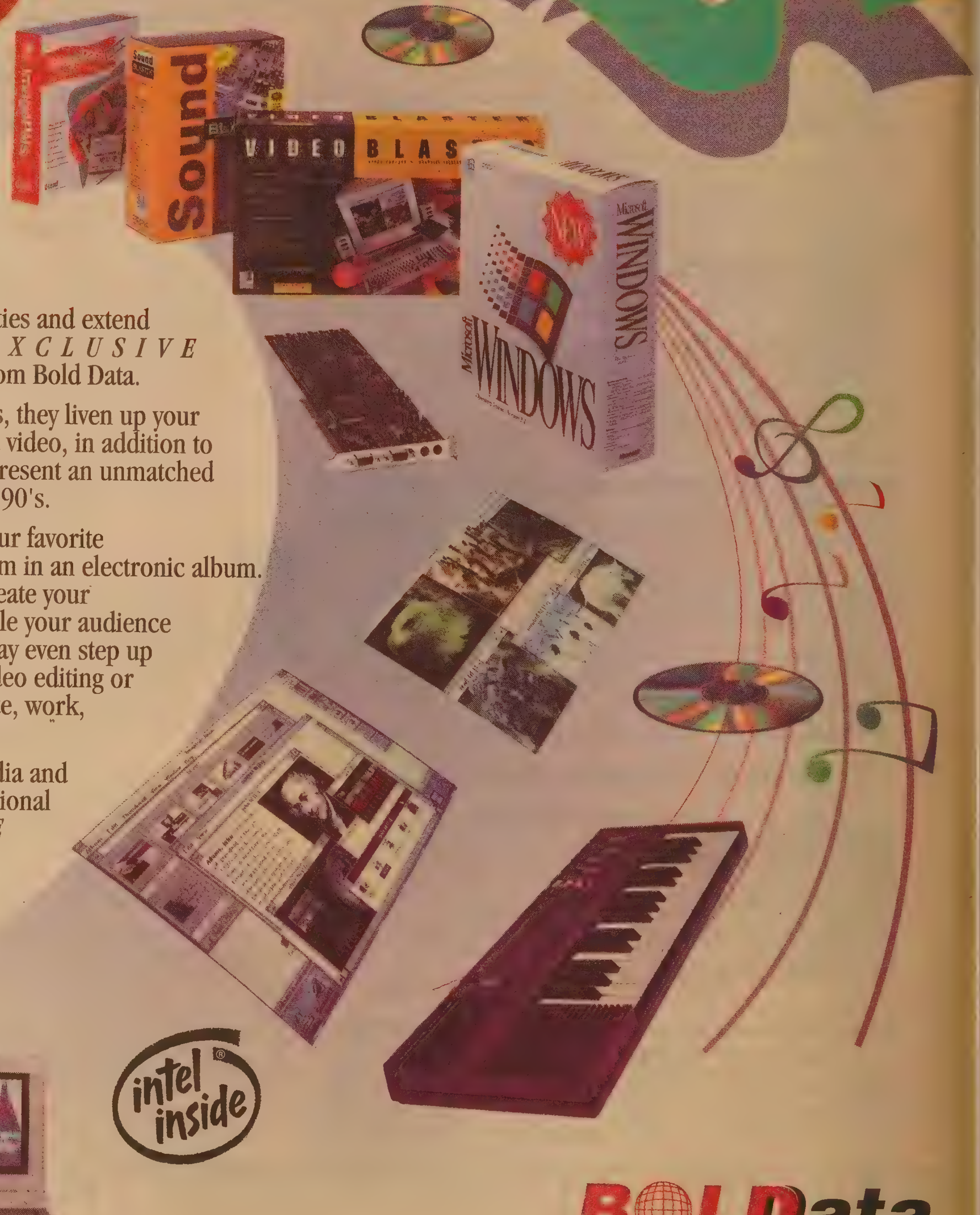

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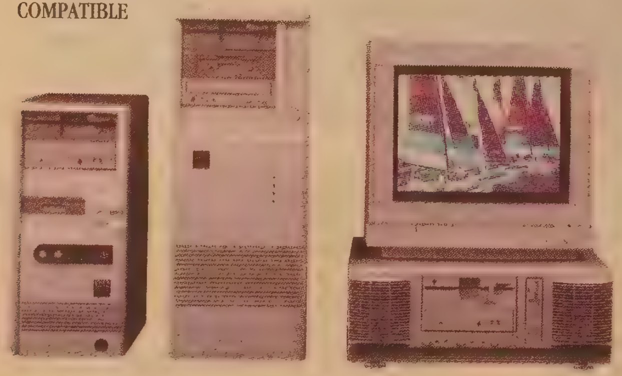

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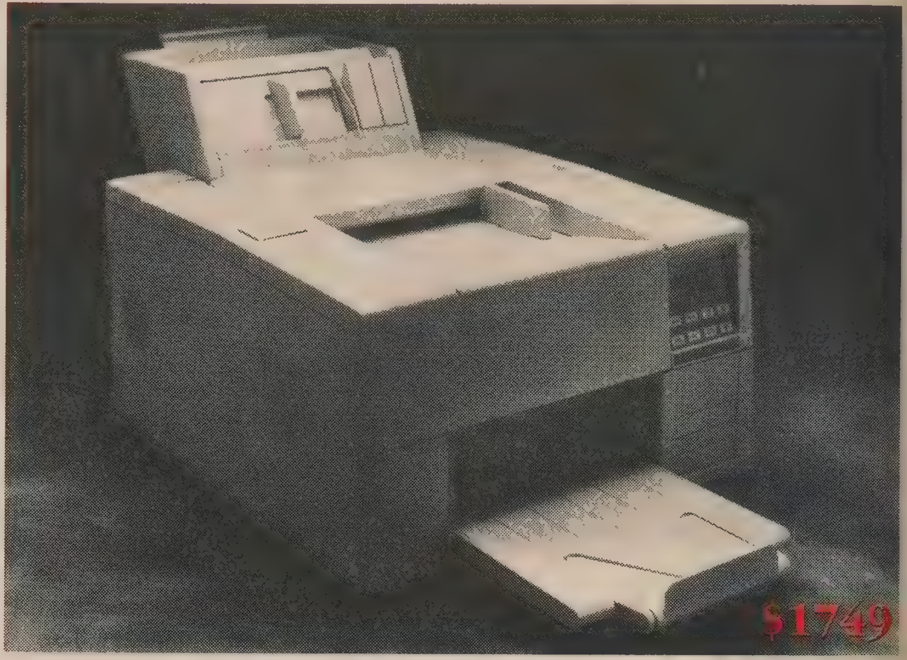

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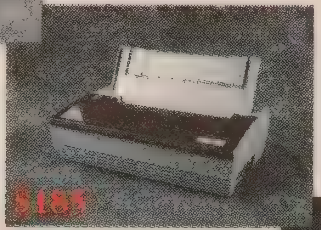

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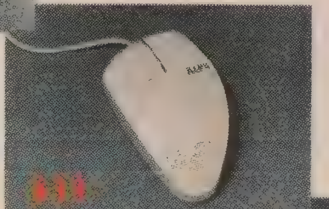

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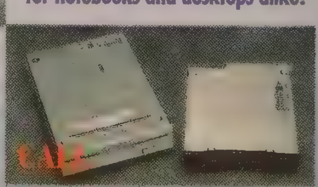

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Industry Insight

Microsoft Struggling With Defining Features For Windows 4, NT 3.5

As most people expected, Microsoft is going to miss its self-imposed June deadline for shipping Windows NT 3.5 due to bugs in the beta test versions. At the same time, Microsoft is also committing to ship Windows 4 by the end of this year even though the first beta test copies, due out in June or early July, won't contain all of the basic features. This has left many users doubting Microsoft's ability to deliver the product in time without significant bugs. If the past is any indication of the present, Microsoft will choose to ship a solid version late.

Of course, of the two operating systems, Windows 4 is much more important than Windows NT 3.5. NT has had a lukewarm reception by businesses, and has been mostly relegated to being used as a file server only. Even Microsoft hasn't produced any significant applications for NT, although it is widely expected that there will be NT-specific versions of Excel and Word after V3.5 is released. These new versions could take advantage of the things that Microsoft has been touting NT for, although if they do not really shine, it will be another indication of how little individual users need NT.

NT was to be released this month, but after the results of the first full beta test, Microsoft will have to delay the release in order to conduct a second round of testing. The bugs in the first round showed up in everything from networking to compatibility with Windows 3.1 programs. According to reports, another problem with the first beta test was that Microsoft shipped significantly fewer copies than expected, and thus did not have as much confidence in the results. The second round of testing should go to a significantly larger audience.

The fate of Windows 4 (which some people still insist on calling "Chicago" as if its codename means anything anymore) is more problematic. Microsoft continues to change the user interface and the list of major features that the program will have, making more people worried that they cannot release a stable product by the end of the year. Although a great deal of in-house testing is being done on the product, it isn't ready to be released even for its first beta test because major functions have not been finished. It is likely that Microsoft will release a version and call it "Beta 1" even though it won't be a real beta version since it will not have all the important features.

For example, a major feature that is currently unfinished is the electronic mail client that Microsoft promised for Windows 4. Currently named InfoCenter, this all-in-one program will let users collect electronic mail and messages from a wide variety of sources and view them using a single interface. Although some other programs perform this daunting task, they are often expensive and need to be set up by experts. Another set of features that may slip from the first beta version, and thus make it not really a beta test but instead an alpha version, relate to peer-to-peer networking of objects. Although Windows for Workgroups does an admirable job of sharing files and simple resources like printers, it cannot share objects such as OLE items over a network. So far, it is not clear how Microsoft will incorporate those into Windows 4.

Microsoft is also having a hard time deciding what the basic user interface for Windows 4 will look like. If you've been looking at the articles in PC-related magazines over the past few months, you've probably noticed that they show different-looking programs. This isn't due to sloppiness on their part: Microsoft has not stopped twiddling with the interface. For example, recent versions of Windows 4 shown by Microsoft have two different ways of viewing the files available to you that depend on whether the files are on your hard drive or on the network. In recent demonstrations, Microsoft has emphasized that the network interface will be made more integral for all users, based on the assumption that a much larger number of Windows users will soon be on a network, even if it is through a modem.

> Microsoft is having a hard time deciding what the basic user interface for Windows 4 will look like.

Regardless of how late either operating system is, it will not affect Microsoft that much. Companies that have committed to NT are not about to defect to a competing operating system such as UnixWare over a three-month delay. Similarly, if Windows 4 doesn't appear until May of 1995, no one will stop using Windows: Where else are they going to go? Sure, some may start using OS/2, but few have proven to be that brave, even as OS/2 has become more robust and more reliable than Windows. This is not to say Microsoft is being callous or careless; instead it shows how computer users are affected by what is a virtual monopoly in the operating system market.

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It has long been the dream of many software companies to be on the required software lists of large companies. Only a few programs such as WordPerfect and Lotus 1-2-3 have made these lists of specified software, and they have benefited mightily from the resulting sales. Even these two pieces of software have not been able to rely on these corporate sales, however, as recent changes in the market have shown. Even in the most rigid of companies, renegade departments would buy non-specified software and thus reduce the effectiveness of standardizing.

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PENTIUM 66 VLB 512K	1225	1331	1492	1711	1944
PENTIUM 60 PCI 256K	1165	1271	1432	1651	1885
486DX4-100 MHz 256K	788	899	1044	1264	1504
BLUE/LIGHTNING 75MHz	385	491	652	871	1105
486DX2-66 PCI 256K	435	572	733	952	1275
486DX2-66 VLB 256K	345	460	605	825	1058
486SLC-66 VLB 64K	236	353	513	733	966
486DX-40 PCI 256K	389	545	705	925	1158
486DX-40 VLB 256K	299	428	589	809	1042
486DX2-50 VLB 256K	315	488	649	868	1102
486SLC-50 VLB 64K	210	326	487	707	940
486SLC-50 ISA	160	276	437	657	890
486DX2-50 PCI 256K	415	583	743	963	1196
486DLC-40 ISA 128K	155	243	404	623	857
486DX-33 PCI 256K	359	578	739	958	1191
486DX-33 VLB 256K	269	462	622	842	1075
486SX-33 VLB 256K	189	295	456	675	908
486-33 ISA	150	256	417	636	869

UPGRADES:

420 MB Hard Drive	Add $40
540 MB Hard Drive	Add $195
15" Non-Interlace Monitor	Add $90
17" Non-Interlace Monitor	Add $450

CASE WITH POWER SUPPLY

Mini Tower Case w/230W Power Supply	$38
Desktop AT Case w/230W Power Supply	42
Medium Tower Case w/250W Power Supply	68
230W Power Supply	38
Full Tower Case/250W/2 Fans	90
Green Power Full Tower w/250W UL	115
Green Power Mid Tower w/250W UL	75
Green Power Mini Tower w/200W UL	65

CD-ROM/MULTIMEDIA

Sony CD-ROM Double Speed/Card	$142
Mitsumi CD-ROM Double Speed/Card	142
Mitsumi CD-ROM	99
Toshiba CD-ROM 200ms SCSI	388
80W Big Speakers Pair	60
TV Recording Video Card	165
Sound Card Gallant SC6000/Speaker/MIDI	115
Sound Card Gallant SC5000/Speaker/MIDI	105
Sound Card Gallant SC3000/Speaker/MIDI	65
Sound Blaster Pro 16 Bit MCD	145
CDTC-049 G Games Expert for Window.	12
CDTC-054 G 50 Win Games (1)	9
CDTC-059 G 50 Win Games (2)	9
CDTC-060 G 50 Win Games (3)	9
CDTC-006 X Mens Club-X	9
CDTC-007 X Pretty Baby-X.	9
CDTC-008 X Pink Lady-X.	9
CDTC-009 X La Travita-X.	9
CDTC-103 X Sakura-X	9

CONTROLLERS

IDE 2FD/2HD/2S 1P 1G	$11
IDE 2FD/2HD/2S 1P 1G Local Bus	22
IDE 4FDD/2HDD 2.88	59
IDE Cache Controller/VLB	145
DTC 3280 SCSI Kit	98
Adaptec 1542CF (SCSI)	169
Adaptec 1522 (SCSI)	85

FLOPPY DRIVES

1.2 MB/1.44 MB Teac	$44/41
1.2 MB/1.44 MB Mitsumi	43/36
1.2 MB/1.44 Teac Black	50/44
1.2/1.44 MB Epson	42/40
1.2 MB/1.44 Teac Dual	110
2.88 MD FDD	98

HARD DRIVES

170 MB IDE	$180
210 MB IDE	189
270 MB IDE	210
345 MB IDE	245
420 MB IDE	249
540 MB IDE	345
520 MB IDE/SCSI	380
1.0 GB SCSI-2 Conner	690
1.2 GB SCSI-2	880
2.0 GB SCSI-2	1450

KEYBOARDS

Mitsumi 101 Keyboard	$13
Keytronic 101 Keyboard	28
Fujitsu 4700 101 Keyboard	40
Maxi-Switch 101 Keyboard	23
Left 101 Keyboard/Click	40
Full CS 2001	33
101 Russian Keyboard	25

MODEMS

Voice 14400/14400 Fax/Modem Mod	$115
Fax Modem (9600/2400) R/S	43
14400/14400 Fax Modem Ext	108
14400/14400 Fax Modem Int V.42	82
US Robotics Sportster 14.4/14.4 Fax/Modem	129
Intel Fax/Modem 14.4/14.4 Fax/Ex	129

MONITORS

14" VGA Mono/Mono Monitor	$105/88
14" SVGA .28 (1024x768)	220
14" SVGA .39 (1024x768)	185
14" SVGA .28 (1024x768) Impression NI	235
ViewSonic 4E/V6E 0.28	259/275
ViewSonic 15E NI .28	385
15" SVGA .28 Non-Int. 1280x1024 MGC	325
17" ADI 28 NI 1280x1024	670
NEC 5FGE/4FGE	1059/735
Nanao 550i	855
17" CTX Non-Interlaced 1280x1024	625
ViewSonic 21 1600x1280	1700
Sony 1430 SVGA .25	508

MOTHERBOARDS

Pentium 586-66 MHz/512K VLB	$295
486DX-66/50/33/256K EISA & VESA	199
486DX-66/50/33/256K 2 VLB Opti	95
3 486DX66/50/33/256K 2 VLB Opti	115
486DX-66/50/33/128K 3 VLB	85
486SX-33 MHz/128K 2 VLB	80
486SX-25 MHz/128K/2 VLB	80
386SX-33/40/CPU	62
386DX-40/128K/Opti Chip	79
586/66/256K PCI/SCSI Card	395
486DX4/256K	130

MOUSE/MISC.

3 Button Mouse	$8
Microsoft Mouse/Logitech MouseMan OEM	29
Trackball Mouse	30
250 MB Tape Back-Up/Tape	150
120 MB Tape Back-Up DJ-10/EXJB-10	125/289
1 MB 70 ns SIMMS	39
4 MB 70 ns SIMMS	159
256x9 70/80 ns SIMMS	12
486 and 386 CPU	CALL
387-40 Math Co-Processor	39

NETWORK

SIIG Ethernet 3 Int Combo	$45
16 Bit Ethernet Card (10BaseT/Coax)	39
16 Bit Ethernet Card BNC/AUI/RJ45	45
Boot ROM 8-16 Bit Auto	11
Ether Express 16 Coax/TP	125/125
3C509 Etherlink III YTP/Coax/Combo	129/129/149
Hub 8 Port 10BaseT Concentrator	155

PRINTERS

Panasonic KX-2023	$199
HP DeskJet 1200C	1499
HP 4/4M/4L	1399/1895/665
HP Scanner 2C	1285
HP DeskJet 550C	495
HP DeskJet 500	289

VIDEO CARDS

ATI Graphics Ultra 2 MB VESA	$280
ATI Graphics Ultra 1 MB (VLB) ISA	155
ATI Graphics Ultra Pro 2 MB PCI	265
Cirrus Logic CL-GD5426/5428 VLB w/1 MB	87
Diamond SpeedStar Pro (ISA/VLB)1 MB	105
Diamond Stealth Pro VLB 1 MB/ 2 MB	220/295
Genoa 8500VLB w/1 MB	95
Orchid Fahrenheit VLB w/1 MB	146
Orchid Celsius VLB 1MB/2MB	155/195
PCI 2 MB to 4 MB	179
VGA 256K/SVGA 512K 16 Bit	26/38
SVGA 1 MB 1024•768 16 Bit	55
Window Accelerators w/1 MB	55
Cirrus Logic VLB w/1 MB	68
Trident VLB w/1 MB	68
Matrox MGA2 + PCI 2MB TO 4MB	529

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Industry Insights *continued*

> **Two trends in corporate buying have greatly increased standardized buying and have helped the largest software companies in both sales and support.**

In the past year, two trends in corporate buying have greatly increased standardized buying and have helped the largest software companies in both sales and support. The first trend is towards communications-based software, most notably Lotus Notes. Notes and other centralized communications software allow a company's MIS department to create programs that pass data between people in an organized fashion and make processes more predictable. The second trend is towards unified software suites like Microsoft Office and Lotus SmartSuite, medium-cost sets of software that cover almost all of the common tasks needed by businesspeople.

Although individuals can use the suites, they are extremely popular in corporations because they reduce training and support costs and they make it more difficult for departments to choose nonstandard software if there is a reasonable replacement in the suite. Microsoft and Lotus have launched strong advertising campaigns aimed at software buyers extolling the features of their suites and promising better support for sites that buy many copies. In fact, many of the changes in technical support that have happened over the last year have been aimed at making large buyers happier, usually at the expense of individual users.

Microsoft's main sales tactics for Microsoft Office has been to make the interface of its programs almost identical and then show people who already use one program how much the others look like it. If you already use Word for Windows and know its toolbars and the general layout of its menus, for example, you will find Excel surprisingly similar. So, why don't you just buy the whole kit and ignore Microsoft's competitors? These arguments are more persuasive with companies who have software budgets in the tens and hundreds of thousands of dollars than with individuals.

While the corporateware moniker is appropriate for the software suites, it is even more appropriate for Lotus Notes. Notes is one of the first pieces of software to sell well despite the fact that it makes almost no sense (yet) for single users. The basic concept behind Notes is that there are repositories of corporate information and that new information should flow into and out of those repositories instead of between individual users. This metaphor makes it much easier to expand distribution lists on an ad hoc basis, to quickly share large chunks of information (such as reports, charts, and so on), and to know what is known about a particular subject.

Lotus Notes is a godsend for some corporate MIS departments, giving them a way to link unsophisticated users into large company databases using a simple interface. They've been buying copies of notes by the hundreds and thousands, quickly making it one of the most popular communications programs available. Setting up Notes isn't easy for an individual, but once you have the hang of it (which is, after all, the job of the MIS department), installing and configuring Notes goes quickly. Adding new users to existing Notes applications is almost trivial.

To corporations, this is the true meaning of corporateware: making incremental additions to the company as painless as possible. Things like network installation and single-diskette configuration are important, but for suites and communications programs to convince MIS departments, they must go well beyond these. Since training can sometimes cost almost as much as the software, reducing costs through standardization can be a huge cost-cutter. The successful suites have extended this by making each component in the suite look like the others, so that companies that don't spend enough on training make it easier on the poor user. Companies like Microsoft, Novell, and Lotus have finally figured out how to entice corporations to standardize on their software, and it will be interesting to see how this affects corporate users who have less choice but more support for the tools they have.

Dell Recalls Defective Monitors

Dell Computer announced a recall of about sixty thousand monitors that could cause a fire. Dell stressed that the recall applies only to the Model DL-1460NI 14" color monitors, and that they had not had problems with any other monitors. These monitors were sold through mail order by Dell and some large outlets like Price Club. Dell said that it would replace the monitors for free, including the shipping in both directions. Anyone with that model of monitor should immediately stop using it and contact Dell to get a shipping box for the monitor.■

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VALUEPOINT 486DX2/66 4/ no. hd. SVGA/VLB	**$1699**
SVGA monitor .28/ 1024 N.I.	$379
Thinkpad 750C 4/170	BEST
Thinkpad 750C 4/340	CALL

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Macintosh **Quadra 605 8/250**
w/ Application Software
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Apple Macintosh multi-media (AV) complete system

COMPLETE SYSTEM	COMPLETE SYSTEM	bundled w/3rd party 17" display	
Apple 14" color **PLUS** monitor 105 key **keyboard** & Power Macintosh **6100 AV** 8/250 CD *60MHz **PowerPC** 601 CPU* *8 MB RAM **250** MB HD & CD* **$2815***	Apple 14" Color Plus monitor 105 key **keyboard** & Power Macintosh **7100AV** 8/500 CD *66 MHz **PowerPC** 601 CPU* *8 MB RAM **500** MB HD & CD* **$4109 ***	17" 3rd party color monitor 105 key **keyboard** & Power Macintosh **8100 AV** *80 MHz-**PowerPC** 601 CPU* *16 MB RAM **500** MB HD* **$5985 *** Video adapter s extra	Apple 14" Color **Plus** monitor 105 key keyboard & Macintosh **Quadra 660 AV** 8/230 CD *68040 CPU, math coprocessor* *8 MB RAM 230 MB HD & CD* **SPECIAL!! CPUw/ CD Complete** **$2059 ***

Apple Macintosh DOS compatible complete system

COMPLETE SYSTEM	COMPLETE SYSTEM	bundled w/ Apple 17" display	
Apple 14" color **PLUS** monitor 105 key **keyboard** & Power Macintosh 6100 **SoftWindows** *60 MHz **PowerPC** 601 CPU* *16 MB RAM **250** MB hard drive* **$2738 ***	Apple 14" color **PLUS** monitor 105 key **keyboard** & Power Macintosh **7100 SoftWindow** *66 MHz **PowerPC** 601 CPU* *16MB RAM **250** MB HD* **$3539 ***	Apple 17" Multiscan monitor 105 key **keyboard** & Power Macintosh 8100 **SoftWindows** *80 MHz **PowerPC** 601 CPU* *16 MB RAM **500** MB HD* **$5964***	Apple 14" color **PLUS** monitor 105 key keyboard & Apple Quadra 610 **DOS** Compatible *25 MHz **INTEL 486**sx &* *25 MHz **68040** processor* *8 MB RAM 160 MB hard drive* **INTEL INSIDE** **$1865 ***

HEWLETT PACKARD

ScanJet IIP	$499
Scan Jet IIcx	$949
DeskJet/DeskWriter Portable 310	$299
DeskJet 500 300dpi	**$269**
DeskJet 520	**$299**
DeskJet/DeskWriter 560C	**$599**
LaserJet 4L 300 dpi, 4ppm	$699
LaserJet 4P 600 dpi, 4ppm	$999
LaserJet 4+ 600 dpi, 12ppm	$1449
LaserJet 4ML 300 dpi, 4ppm	$1049
LaserJet 4MP (4ppm, 6MB, laser)	$1399
LaserJet 4M+ 600 dpi, 12ppm	**$1999**
DeskJet 1200C	$1449
DeskJet 1200c/ PS	$2249
LaserJet 4si 600 dpi, 17ppm	$2999

Texas Instruments Computers and Printers

TEXAS INSTRUMENTS

New 75 MHz NoteBook
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Active Matrix Color
4MB RAM 455 MB HD
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Dual Scan Color

WinDX2/50 (4/200)	**$2849****
WinDX2/40 (4/200)	**$2599****
Multimedia SX25 (4/120)	**$2499**
WinSX25 (4/120)	**$1949**

Active Matrix Color

WinDX2/50 (4/200)	**$3399****
MultiMedia DX4/75(4/340)	**$5199**

TI Printers

MicroMarc inkjet	**$299**
MicroWriter	**$529**
MicroWriter PS23	**$699**
MicroWriter PS65	**$959**
MicroLaser Pro 600 PS23	**$1399**
MicroLaser Pro 600 PS65	**$1569**

Canon NoteBook Computers and Printers

Canon

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Innova NoteJet w/ built-in printer

486 SX 33MHz 4/120 MB mono	**$1879**
486 SX 33MHz 4/200 MB mono	**$1999**

Dual Scan Color

486 SX 33MHz 4/120 MB	**$2449**
486 SX 33MHz 4/200 MB	**$2599**

PRINTERS

LBP-860 600dpi, laser	**$1299@**

(@after $30 rebate, good for limited time only)

BJ10sx portable	**$219@**
BJ200E	**$269@**
BJ230 (wide 132 column)	**$369@**
LBP-430 (300dpi, 4ppm)	**$559@**
BJ-600 Color 300 dpi	**$559@**

Other Store locations:

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(916) 972-7678
(M-F 10-7 SAT 11-5)

Walnut Creek:
1601 North Main St.
(510) 256-8828
(M-F 10-7 SAT 11-5)

San Francisco
5000 Geary Blvd.
(415) 387 - 7272
(M-F: 10:00-7:00, SAT 11-5)

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217 Sansome St.
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(M-F: 9:00-6:00, SAT 11-5)

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**** Mounting kits, cables, installation are not included. • 105 key keyboard is 3rd party keyboard. "90 days as same as cash" subject to credit approval & subject to change or can be discontinued without prior notice • Apple, the Apple logo, Macintosh are the registered trademarks of Apple Computer, Inc. The Macintosh PowerBook, Macintosh Quadra, Power Macintosh StyleWriter are the trademarks of Apple Computers Inc. IBM are registered trademarks of International Business Machines Corp. All brands and product names are the trademarks of their respective companies. Prices and stock availability subject to change without notice. Not responsible for typographical errors.*

Industry Insights *continued*

TECHNOLOGY STOCKS RALLY AMID STRENGTHENING NATIONAL ECONOMY

EXCH	COMPANY		TICKER SYMBOL	CLOSING PRICE 04/29/94	CLOSING PRICE 05/27/94	NET CHANGE IN PERIOD	PERCENT CHANGE IN PERIOD	P/E RATIO	ANNUAL DIVIDEND RATE	ANNUAL DIVIDEND YIELD	ANNUAL HIGH	ANNUAL LOW
	SOFTWARE											
OTC	Adobe		ADBE	25.50	27.50	2.00	7.84	23	0.20	0.73	37.00	16.25
OTC	Aldus		ALDC	28.38	27.63	-0.75	-2.64	34	0.00	0.00	34.50	13.50
OTC	Autodesk		ACAD	54.00	52.00	-2.00	-3.70	21	0.48	0.92	61.75	37.00
OTC	Borland	(L)	BORL	12.00	9.75	-2.25	-18.75	18	0.00	0.00	26.00	8.50
OTC	Informix	(L)	IFMX	16.75	15.50	-1.25	-7.46	18	0.00	0.00	27.25	14.25
OTC	Lotus		LOTS	63.38	61.38	-2.00	-3.16	44	0.00	0.00	86.50	30.25
OTC	Microsoft (s)		MSFT	46.06	52.38	6.31	13.70	29	0.00	0.00	54.25	35.19
OTC	Novell		NOVL	18.63	17.75	-0.88	-4.70	-	0.00	0.00	29.25	15.38
OTC	Oracle		ORCL	29.88	34.13	4.25	14.23	42	0.00	0.00	37.75	19.88
OTC	Software Publishing	(L)	SPCO	5.25	5.00	-0.25	-4.76	-	0.00	0.00	8.63	3.75
OTC	Symantec		SYMC	15.88	13.75	-2.13	-13.39	-	0.00	0.00	20.50	10.88
	HARDWARE											
OTC	Apple		AAPL	30.25	29.94	-0.31	-1.03	-	0.48	1.60	58.25	22.00
OTC	AST Research		ASTA	18.75	17.63	-1.13	-6.00	-	0.00	0.00	33.00	13.75
NYS	Commodore		CBU	0.88	0.88	0.00	0.00	-	0.00	0.00	4.63	0.50
NYS	Compaq	(H)	CPQ	109.25	116.50	7.25	6.64	18	0.00	0.00	119.63	43.13
NYS	Digital Equipment		DEC	21.50	22.88	1.38	6.40	-	0.00	0.00	44.75	18.25
OTC	Dell		DELL	22.75	28.81	6.06	26.65	-	0.00	0.00	32.75	13.50
NYS	Hewlett-Packard		HWP	78.75	79.00	0.25	0.32	15	1.20	1.52	93.63	64.38
NYS	IBM	(H)	IBM	57.13	63.63	6.50	11.38	-	1.00	1.57	64.13	40.63
NYS	Silicon Graphics		SGI	24.25	22.88	-1.38	-5.67	27	0.00	0.00	26.88	16.00
OTC	Sun Microsystems	(L)	SUNW	22.38	21.38	-1.00	-4.47	11	0.00	0.00	32.63	19.75
NYS	Xerox		XRX	98.88	101.13	2.25	2.28	-	3.00	2.97	104.88	69.88
NYS	Tandy		TAN	33.13	37.63	4.50	13.58	15	0.60	1.59	50.75	28.13
	CPU'S											
NYS	Advanced Micro Devices		AMD	26.00	26.25	0.25	0.96	10	0.00	0.00	32.75	16.75
OTC	Intel		INTC	61.69	61.38	-0.31	-0.51	11	0.24	0.39	74.50	49.25
NYS	LSI Logic	(H)	LSI	22.25	23.25	1.00	4.49	19	0.00	0.00	23.63	13.00
NYS	Motorola		MOT	44.63	47.00	2.38	5.32	24	0.28	0.60	54.88	40.31
	COMMUNICATIONS											
NYS	AT&T		T	51.25	54.75	3.50	6.83	18	1.32	2.41	65.00	49.50
NYS	BellSouth Corp.		BLS	60.63	59.00	-1.63	-2.68	24	2.76	4.68	63.88	51.63
OTC	MCI		MCIC	22.88	24.31	1.44	6.29	21	0.04	0.16	29.88	21.38
NYS	Northern Telecom		NT	29.88	31.25	1.38	4.60	-	0.36	1.15	38.63	21.38
NYS	Pacific Telesis		PAC	31.88	30.38	-1.50	-4.71	27	2.16	7.11	34.50	27.66

Note: Microsoft completed a 2-for-1 stock split.

KEY: NYS = NEW YORK ASE = AMERICAN OTC = OVER THE COUNTER
(H) = NEW HIGH REACHED IN PERIOD (L) = NEW LOW REACHED IN PERIOD

MARKET DIARY:

ADVANCES....................	16
DECLINES....................	15
UNCHANGED................	1
NEW HIGHS..........	3
NEW LOWS...................	4

MOST ACTIVE ISSUES:

LARGEST DOLLAR GAINER....................	Compaq..............................	$	7.25
LARGEST DOLLAR LOSER......................	Borland..............................	$	-2.25
LARGEST PERCENTAGE GAINER...........	Dell....................................		26.65 %
LARGEST PERCENTAGE LOSER............	Borland................................		-18.75 %

	CLOSE 04/29/94	CLOSE 05/27/94	NET CHANGE IN PERIOD	PERCENT CHANGE IN PERIOD
MICROTIMES STOCK INDEX	4639.86	4709.29	69.43	1.50
DOW JONES INDUSTRIAL AVERAGE	3668.31	3757.14	88.83	2.42
STANDARD & POOR'S 500 INDEX	450.91	457.33	6.42	1.42
N.Y.S.E. COMPOSITE	249.13	252.79	3.66	1.47
NASDAQ COMPOSITE	731.69	733.14	1.45	0.20

CLOSING QUOTES FOR GRAPH:

DATE	MICRO TIMES	DOW JONES
10/18/93	4473.13	3642.31
12/17/93	4644 25	3751.57
01/07/94	4866.50	3820.77
02/04/94	4728.74	3871.42
03/04/94	5081.75	3832.30
04/05/94	4878.26	3675.41
04/29/94	4639.86	3668.31
05/27/94	4709.29	3757.14

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The US economy grew at a 3% clip during the first quarter of 1994, up from an estimate of 2.6% projected last month. As a result, stocks nationally turned in impressive performances in the month of May.

The MicroTimes Stock Index benefited from the good economic news, as our indicator of thirty-two technology stocks rallied 69.43 points, or 1.50%, en route to a close of 4709.29. The Dow Jones Industrial Average, in comparison, tacked on 85.64 points, or 2.33%, to conclude at 3757.14. Turning to stocks in the accompanying table:

Borland International Inc., which was the largest dollar and largest percentage loser during the period, said it plans to launch its long-awaited database product next month, although CEO Philippe Kahn acknowledged that the software still has "bugs" that could keep it off retail shelves for weeks.

Separately, Kahn denied recent reports that Borland might spin off another of its business units after selling its Quattro Pro spreadsheet division to Novell Inc. earlier this year. Kahn, trying to calm worries among potential customers who had asked about the company's stability, also lashed out at the news media for negative stories about Borland's potential. The company said that it expects to post lower revenue and an operating loss for its first quarter ending June 30. The software maker said that its revenue will be hurt by declining sales of its Quattro Pro spreadsheet and its Borland Office software suite.

Compaq Computer Corp., the Houston-based computer maker, sold the most computers worldwide in the first quarter, beating perennial leaders IBM and Apple, and gaining market share in the crucial US PC market. Compaq said that it expects to be the top PC supplier in the world by 1996.

The company's shares also gained amid optimism about second-quarter sales and in anticipation of the company's three-for-one stock split, traders said. Michele Preston, an analyst at Merrill Lynch & Co., says she expects second-quarter sales to exceed expectations and that earnings could be above her estimate of $2.11 per share.

As a result of the aforementioned events, investors were quick to add shares of Compaq to their portfolios last month, as the share price of the Houston based company rallied $7.25 a share, or 6.6%, before pausing at $116.50. Compaq was the largest dollar-gainer of the lot, and hit a new 52-week high of $119.63 during the period before profit-taking whittled away at the stock price. The company's shares have rocketed 60% in the last six months.

IBM rallied a brisk $6.50 a share, or 11.4%, to close at $63.63. The company recently reported stronger-than-expected first-quarter earnings. A week after reporting encouraging first-quarter earnings, Louis V. Gerstner Jr., chairman of IBM, said, "I think we've stopped the bleeding... We are not proclaiming victory, but I think it's safe to say the funeral dirge is over."

Separately, International Business Machines reported that it has cut about 20% to 23% of the thirty-five thousand jobs it said it would eliminate by the end of the year. Thus far, seven thousand to eight thousand jobs have been cut, leaving a substantial amount yet to be trimmed over the next eight months.

Dell Computer, the largest percentage gainer in this period, was raised to "hold" from "sell" at Salomon Brothers by analyst Lucianne Painter. Last month, Dell announced that net income rose to $19 million, or $0.42 cents a share in the first quarter, up from $10.2 million, or $0.25 a year ago. Dell attributed the improvement to lower expenses and higher sales of profitable Pentium-based machines.

In other news. Austin, Texas-based Dell is selling its investment portfolio of risky derivative securities, which sliced $2.3 million off Dell's fiscal first-quarter profits. ■

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4x32-60ns......599	2x36-70ns......309	1x8-80ns..........43	1x9-80ns..........40
4x32-70ns......589	2x36-80ns......289	4x8-60ns........149	1x9-100ns........38
8x32-60ns....1199	4x36-60ns......619	4x8-70ns........145	4x9-60ns........159
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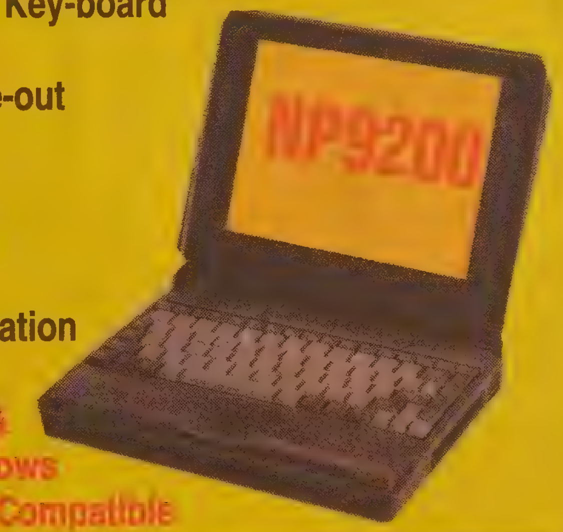

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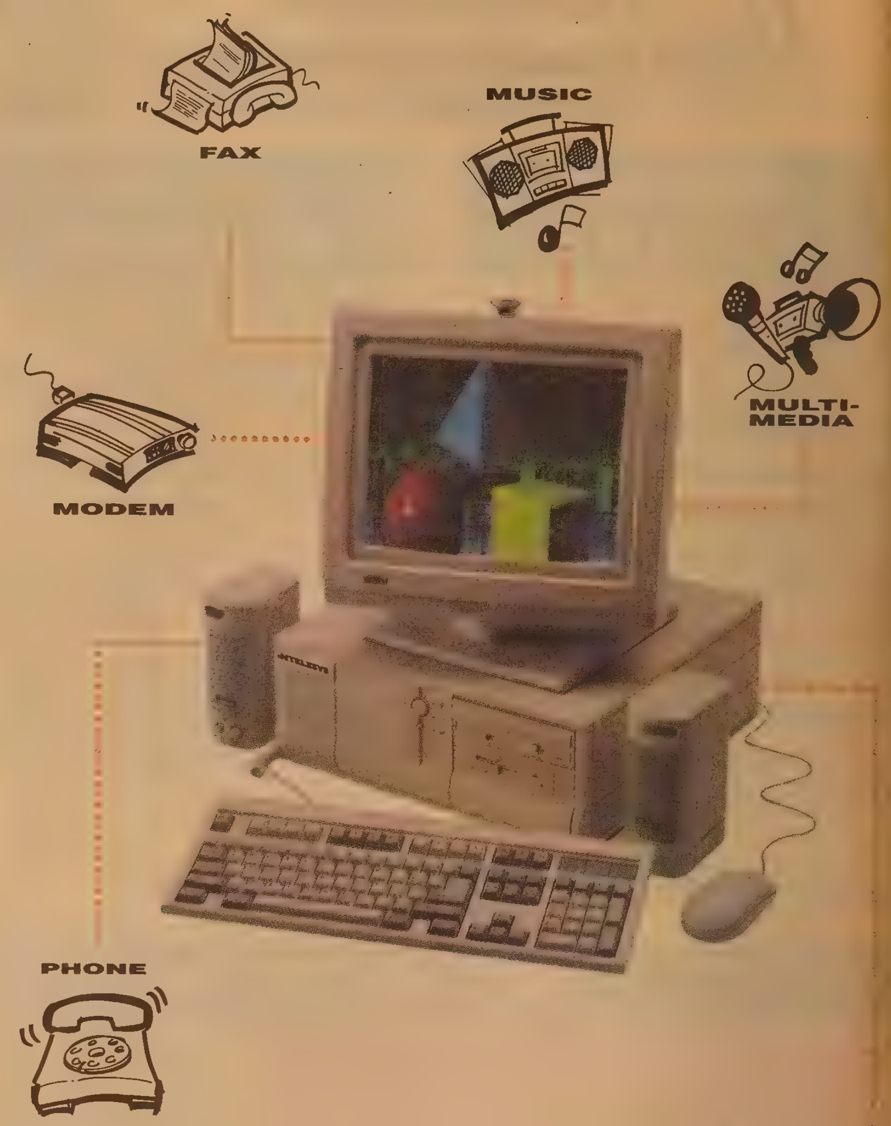
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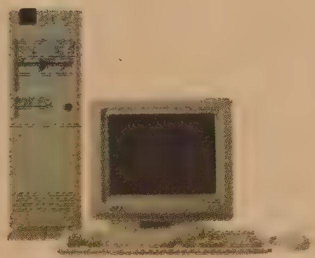

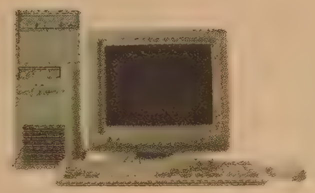

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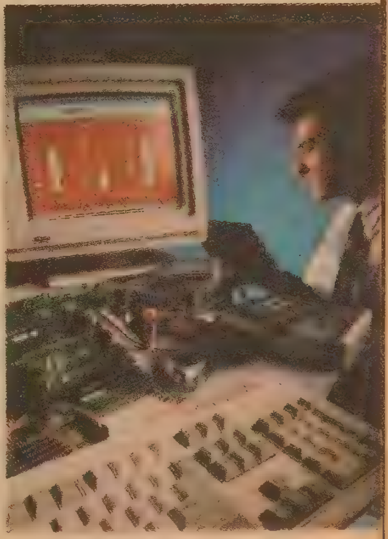

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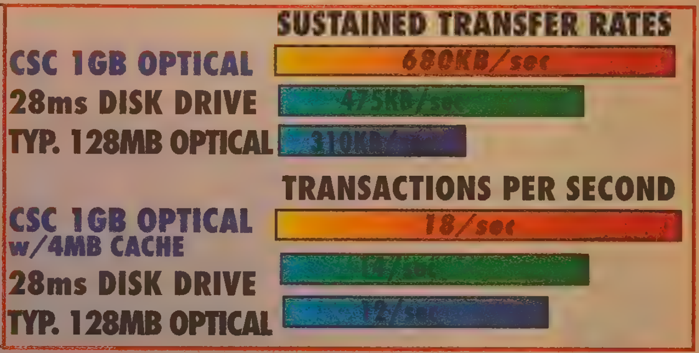

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But How To Get It?

These columns concern our futures. This one concerns technology and the marketplace—but not exactly as a MicroTimes reader might expect.

This is one of those "Ahah!" insights. I awoke with it about 5:30 one morning in early December of '92. It derived from a meandering afternoon's chat with André Bacard of Mill Valley.

This concerns living—how we are doing it, versus how we could, realistically, do it.

We try to build things so they wear out.

It is well documented that obsolescence became an overt industrial policy by the mid-'50s, replacing durability and—all too often—also replacing pride of craft.

Productivity Outstripped Consumption

Let's face it: No matter how hard we try, we no longer consume as much as we can produce. The most effective propaganda machine in the world—American television plus Madison Avenue's massive marketing manipulations—can no longer goad us into buying enough of the stuff we don't need.

And overproducing employers are downsizing.

We try to build things so they wear out. It is well documented that obsolescence became an overt industrial policy by the mid-'50s, replacing durability and—all too often—also replacing pride of craft. It's working in some cases—razors, diapers, nose-wipes, drink containers, pet rocks, newspapers, computers. Our landfills prove it.

But where it really counts—in high-ticket items like cars, refrigerators, and houses—even the most obedient, fully indoctrinated, possession-coveting, Jones-following consumer keeps opting for things that last. And some ignorant twits insist on building such things—all too often in some other nation.

They simply don't understand. Full employment in a market-based economy requires that consumption match productivity.

The Ol' Daze

When I was a kid in the '40s and '50s, we did really weird stuff. Families and friends actually hung out at each other's homes.

We even did things together. Often, we even enjoyed it.

We had friends in those days. We even thought friendships were very important. We actually spent significant time doing things with each other. Just for the fun of it!

Usually, we didn't even go to a bar, resort, or other commercial consumption center. Amazing, huh?

Then in the acid-eatin', dope-smokin', nudie-kook, anti-war hippie '60s—when we thought we'd change the world, even if it took a year or two—many of us still spent massive moments with other humans, although early TV was around.

But then TVA took hold—TeleVision Addiction. (And yes, I'm at least as hooked as most folks—hours of nightly vidiocy in place of time with friends. Of course, it doesn't help that I've isolated myself on a rural 40-acre mountaintop—part of that dream, ya know—a half-hour from everyplace. But that's another story.)

All that was before we received hours of daily video instruction in how many more expensive activities we had to pursue, and how many more things we needed to own than we currently possessed.

Why, in the good ol' days, we could even have less than someone else without feeling poor, abused, or exploited—without picketing and litigating whenever our "rights" and "entitlements" weren't being instantly provided by the government.

Utopia Past

In those quaint mid-century decades, our utopian fantasy was to have a home and family—or at least cozy companions or a cordial commune—and friends and time to spend with them.

But we needed ample food, comfortable shelter, and reasonable transportation, and our individual capacities to produce such things were limited. So most of us had to work most of the time to produce what we, as individuals and as a society, needed for what we were told was "the good life."

Now, mechanization and automation have so greatly empowered us that we, collectively, can—and do—produce far more than we conceivably need.

Now we have the productive capacity to provide ample food, shelter, transportation, and free time, at least for this nation and probably for this hemisphere. That was all we needed for Utopia in the fourth quarter of the twentieth century.

Why Not Utopia, Now?

But our market-based economy—where permission to consume is exclusively a function of personal ability to produce—doesn't work. Fewer and fewer of us can produce all that everyone needs to consume. It's also clear that excessive consumption—unneeded for home, family, and friends—is environmentally dangerous.

Equally dangerous is the propaganda that one must possess ever more, or else be spat upon as a poor, abused, exploited second-class citizen. If I was an ill-educated, permanently unemployable ghetto or barrio resident, daily brainwashed to "know" that I had to have all this stuff if I was to be respected, but unable to earn it—hell, I'd probably be as armed and dangerous as they are.

But few of us have any reason to trust a government-based economy—such as

Continued on page 142

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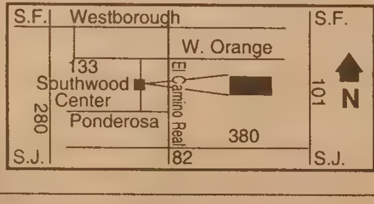

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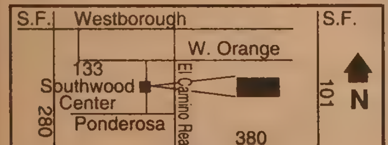

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Letters

Credit Cards Online: Another View

In last month's *BBS column, Kathleen Creighton wrote: "I've already counseled against giving an online service carte blanche to one's credit card, and said you should never, ever use a debit card. As more goods and services become available online, not typing in that credit card number to make a purchase is going to be more and more inconvenient. We exercise discipline or we take our chances."*

A sysop of a local for-profit BBS wrote to express a different point of view:

As a BBS operator advertising in this magazine I was shocked to read an article in last month's issue. In the article "Dare To Not Be Stupid Online" the writer states you should never give your credit card information to a BBS system. She says that if you do then you take your chances.

First of all, for a BBS or any small business to obtain a merchant account for credit card processing is no easy task. The bank goes through every background and credit check possible before a person's business is approved. Many people never get approved even with perfect credit. The banks are selective when it comes to giving a small business a merchant account. If you are a BBS provider working out of your home it is even harder to get approved.

The point is that if the banks have enough faith in a BBS system to give them a merchant account, the business is an honest one. If a BBS was doing something funny with credit cards, it would be shut down very fast. Within forty-eight hours the banks and the card's security department would have that merchant account closed. Next the owner would have a visit from the police department, since credit card fraud is a felony.

Most people order products through the mail from small companies and don't think twice about entering their card numbers. A BBS system is a business that wants to give its customers safe and secure service like any other company.

You can be sure if a BBS has been around for several years and has a display ad in *MicroTimes* they are a good honest business. Your credit card orders would not be treated any differently than by any other company.

Name withheld by request

Kathleen Creighton responds: One national online system is STILL billing my credit card although I cancelled the service months ago. In my opinion, that's just one of many potential problems with giving services your card number.

With all due respect, and while I understand the point the sysop is making, I still wouldn't give out my credit card number, or wouldn't give it out thoughtlessly.

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BY JOHN PERRY BARLOW

To Be At Liberty

(From the documentary "Declarations," currently being broadcast on PBS; check with your local affiliate for broadcast schedule)

Let me tell you where I'm coming from. I grew up on a ranch near Pinedale, Wyoming, a very free town not far from the middle of nowhere.

It was the kind of place where a state legislator could actually say, "If the English language was good enough for our Lord Jesus Christ, it's good enough for our school children."

Though surely a hick town, it was also a real community. There was a lot of trust. Neither the locks nor the lawyers got used much. People knew each other and tried to let one another be. After all, they'd come to that wild and remote place to be free. Liberty was a fierce practice among them. That it might also be a legal guarantee seemed irrelevant.

It seems to me that elsewhere in America, liberty is far more a matter of law than practice. The Bill of Rights is still on the books, and they'd have a hell of a time putting you in jail for just saying something, but how free are we?

Whatever the guarantees, I believe liberty resides in its exercise. Liberty is really about the ability to feel free and behave accordingly. You are only as free as you act.

Free people must be willing to speak up...and listen. They can't merely consume the fruits of freedom, they have to produce them.

This exercise of liberty requires that people trust one another and the institutions they make together. They have to feel at home in their society.

Well, Americans don't appear to trust each other much these days. Why else would we employ three times more lawyers per capita than we did in 1970?

Why else would our universities be so determined to impose tolerance that they'll expel you for saying what you think and never notice the irony? Why else would we teach our kids to fear all strangers? Why else have we become so afraid to look one another in the eye?

We have come to regard trust as foolishness and fear as necessary. We live in terror that the people around us might figure out what we're actually thinking.

Frankly, this America doesn't feel very free to me at all. What has happened to our liberty?

I think much of the answer lies in the critical difference between information and experience.

These days we view most of our world through a television screen. Most of our knowledge comes from information about things, not experience with them.

Let me return to Pinedale for an example. Those folks killed each other pretty regularly, but there wasn't much fear. They knew each other, and if somebody got shot, it wasn't too hard to figure out why.

Homicide was not abstract. It was a familiar threat, like wild horses or winter.

And you also knew that today's opponent might be the only person along to pull you out of a snowdrift tomorrow. So tolerance and trust were practical necessities. Living more or less safely in a world we understood, we found liberty an easy thing to keep.

But elsewhere, as I say, the average American's sense of the world has likely been derived by staring at it through the one-way tunnel of information.

What the media's taught my fellow citizens is that all the world is dangerous in some irrational, non-specific way. Terrorists are everywhere. Nature is in open rebellion. Making love can kill you. Your fellow humans are liars in suits, thugs, zealots, psychopaths, and, mostly, victims who look a lot like you.

> **Free people must be willing to speak up...and listen. They can't merely consume the fruits of freedom, they have to produce them.**

Television amplifies the world's mayhem and gives you no way to talk back. No way to ask, "Is this the way the world is?" Just as right now it's giving you no way to argue with me.

Why does television prefer terrifying images? Because it lives on your attention. That's what television is really selling. And scaring the hell out of you is, like sex, one of those really efficient ways to get your undivided focus. To gain it, they flood your living room with images designed to hit your fear glands like electricity. So we have erected a glowing altar in the center of our lives that feeds on our terror, and Fear has become our national religion.

We ask the government to defend us against the virtual goblins that stream from the tube, and the government has obliged us.

For example, in 1992, a total of two Americans died in terrorist attacks. Not what I'd call a major threat. But our fear of them is so real that we spend tens of billions a year to protect ourselves from terrorism. For many Americans, making the car payments depends on keeping this fear alive.

But you cannot build a society of general trust in an atmosphere of general fear. The fearful are never free.

If we are to fight back—if we are to regain the courage necessary to the practice of liberty—we are going to have to stage another kind of revolution. We need to find a new means of understanding the world that takes no profit from our fear.

We need a medium that, like life itself, allows us to probe it for the truth. We need, in essence, to cut out the middlemen and speak directly to one another. Indeed, we need a place where we can share informa-

Continued on page 160

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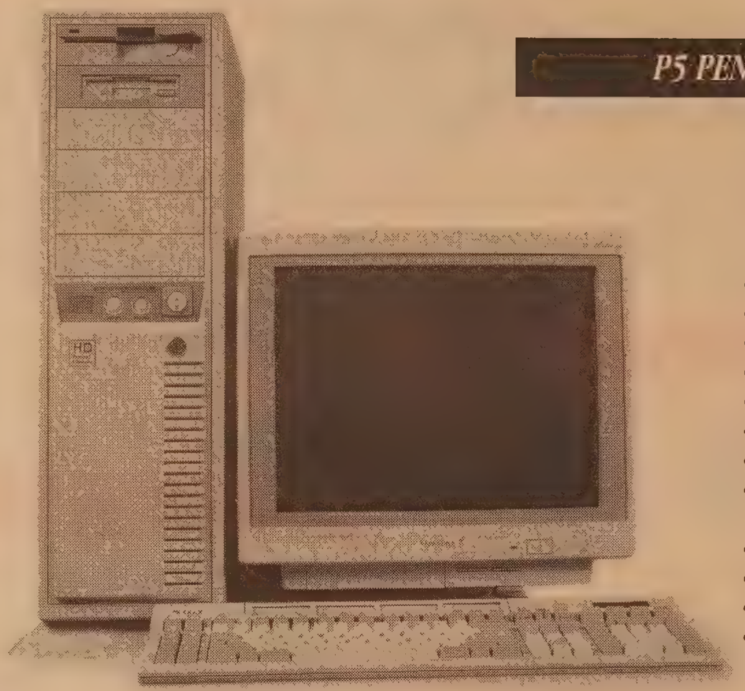

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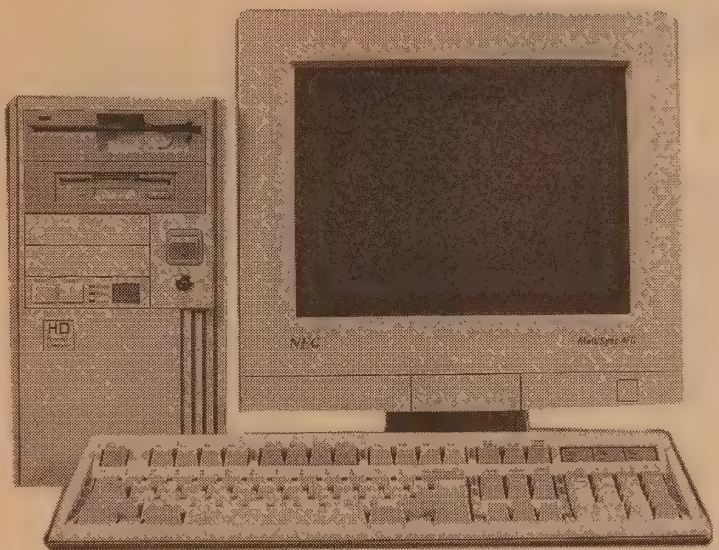
- *Free PFS: Windows Works*

SX-33	**$1005**
DX-33	**$1155**
DX2-50	**$1185**
DX2-66	**$1255**



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- *Mid Tower Case w/ 230W Power Supply*
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DX2-66	**$1695**

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- *Saves up to 70% on Energy Consumption*
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- *14" Non-interlaced monitor, .28dpi*
- *101-key Enhanced Keyboard*
- *3 Button Serial Mouse*
- *Free Mouse Pad*
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SX-33	**$1115**
DX-33	**$1265**
DX2-50	**$1295**
DX2-66	**$1365**

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- *Speaker and Microphone*
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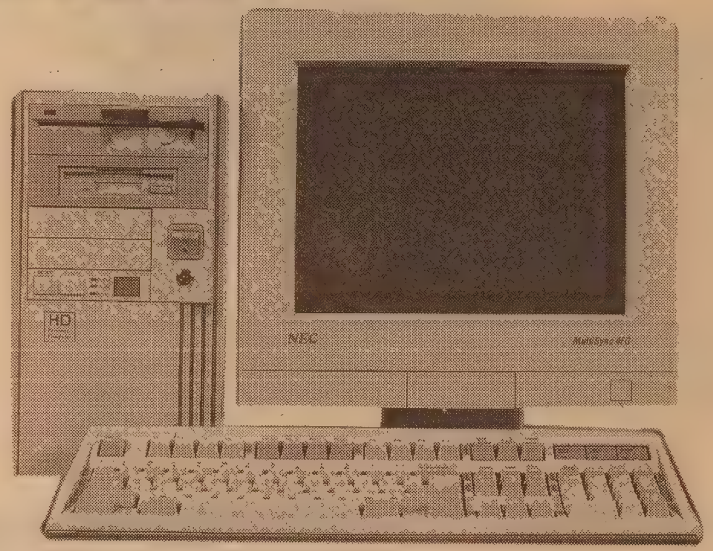

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- *Entry Level Multimedia Upgrade Kit.*
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- *Lemmings, Animals!, Software Toolworks' Encyclopedia Sound Blaster CT-38 Shielded Stereo Speakers.*

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Creative Lab

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•*DM-5028 External w/Caddy*	***$368***
TEAC/CD-50 •*SCSI CD ROM*	***$229***
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•*Sound Blaster 16 SCSI 2/with ASP*	***$169/198***
•*Sound Blaster 16 MultiCD/with ASP*	***$139/179***
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•*Wave Blaster*	***$179***
•*Media Vision*	
•*Pro Audio Spectrum 16*	***$89***
•*Pro Audio Studio 16*	***$125***
•*Gallant*	
•*MIDI Kit*	***$39***
•*Gallant 4000 w/Interface, Speaker & Microphone*	***$79***
•*Gallant 5000 16 Bit Stereo w/Interface, Speaker & Microphone*	***$95***
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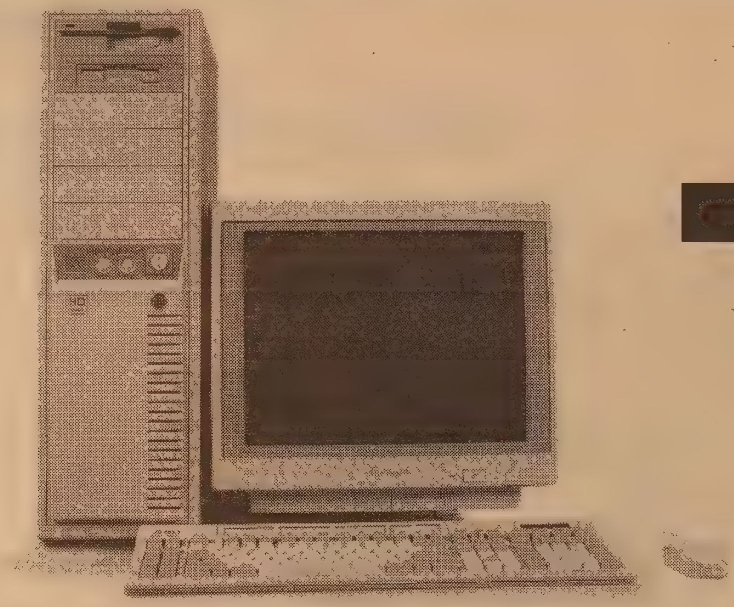

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EN-2000BT 16Bit Combo	***$85***
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NE-2000T Plus	***$115***
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NE-2000 Plus 3	***$129***

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- *14" Non-interlaced Monitor, .28 dpi*
- *101-key Enhanced Keyboard*
- *3 Button Serial Mouse*
- *Free Mouse Pad*
- *Free PFS: Windows Works*

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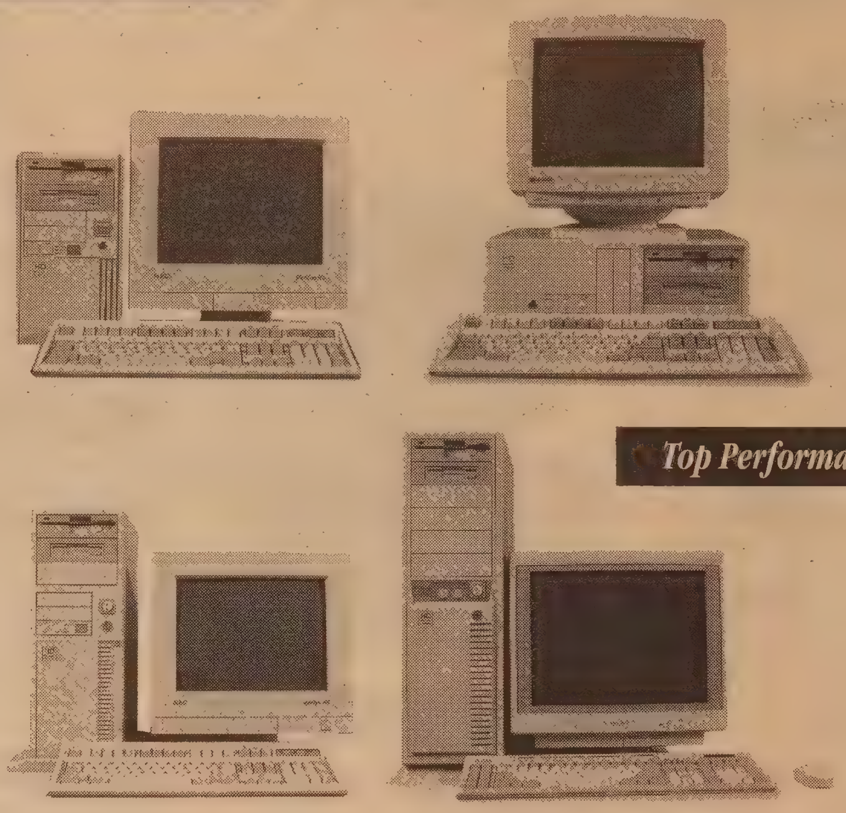

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- *101-key Keytronic Keyboard*
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NOTEBOOK

Twinhead Powerful Slimnote

- *Intel SL Enhanced Processor*
- *4MB RAM Expandable to 20MB*
- *1.44MB Built-in Floppy Disk Drive*
- *84 Keys Keyboard*
- *PCMCIA Type II Slot*
- *Built-in Trackball*
- *10" VGA/Mono Display*
- *MS DOS 6.2, MS Windows 3.1*
- *Physical Dimensions 8.5" x 11" x 1.6"*
- *Weight with Battery 5.8 lbs*

486DX-33 w/200MB HD	***$1730***
486DX2-66 w/200MB HD	***$2150***

MTC-4020 Color Notebook

- *Intel 486SX-33 CPU*
- *4MB RAM Expandable to 20MB*
- *130MB IDE Hard Disk*
- *One Serial Port, One Keyboard/Mouse Port*
- *One External VGA Connector*
- *One PS II Keyboard/Mouse Connector*
- *85 Keys Keyboard with Inverted " T" cursor Keys*
- *Build-in 1.44 MB Floppy Disk Drive*
- *Built-in 16mm Trackball*
- *Preloaded with Microsoft DOS and Windows*
- *11" (W) x 8.5" (D) x 1.9" (H)/5.5lbs*

$1815

PCMCIA

XIRCOM. Creditcard Ethernet Adapter

- *Convenient Network Connection VIA the PCMCIA Slot*

$289

ADAPTEC SLIM SCSI

- *16 Bit PCMCIA-To- SCSI Host Adapter*

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• Pocket Lan Coax (for notebook)	***$137***
• Pocket Lan 10 Base-T (for notebook)	***$140***
• 14400 Fax/Moden Mini-Pocket (for notebook)	***$229***

- *Intel SL Enhanced Processor*
- *4MB RAM Expandable to 20MB*
- *1.44MB Built-in Floppy Disk Drive*
- *84 Keys Keyboard*
- *256 Color Display/512K RAM*
- *PCMCIA Type II Slot*
- *Built-in Trackball*
- *MS DOS 6.2, MS Windows 3.1*
- *Physical Dimensions 8.5" x 11" x 1.8"*
- *Weight with Battery 6.3 lbs*

486DX-33 w/200MB HD Dual Scan Color	***$2395***

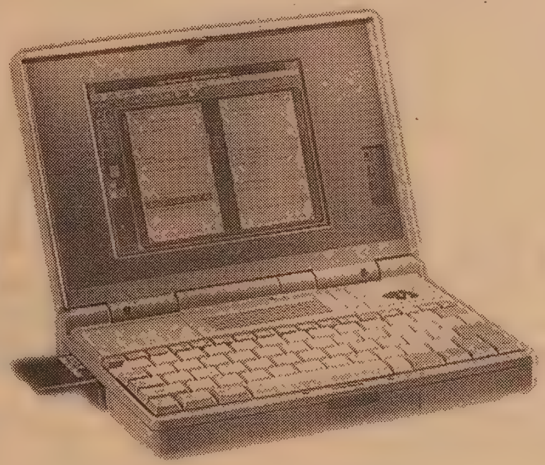
Twinhead Brilliant Color Notebook

486DX-33 w/200MB HD Active Color	***$2950***
486DX2-66 w/200MB HD Active Color	***$3570***

Twinhead 4 Pounds Powerful Subnote

- *Intel SL Enhanced Processor*
- *4MB RAM Expandable to 8MB*
- *1.44MB External Floppy Disk Drive*
- *8" Side lit VGA display, 64 shades*
- *85MB IDE Hard Disk*
- *79 Keys Keyboard*
- *64 Gray Shades VGA Display*
- *PCMCIA Type II Slot*
- *Built-in Trackball*
- *MS DOS 6.2, MS Windows 3.1*
- *Physical Dimensions 7.1" x 10" x 1.6"*
- *Weight with Battery 4 lbs*

486SL-33 Only	***$1410***



Accesories

• Mini-Pocket 14.4 Fax Modem	***$229***
• Dlink DE-600TP Pocket Ethernet	***$199***
• Dlink EN-6000B Pocket Lan BNC	***$137***
• Danpex EN-6000T Pocket Lan 10BT	***$140***
• EP 888A Pocket Lan BNC + 10BT	***$145***

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340MB, IDE, 13ms	**$233**
420MB, IDE, 12ms	**$249**
540MB, IDE, 12ms	**$338**

SCSI Hard Disk

Capacity	M/N	Cache	Speed	Size	Internal
340MB					$295
540MB	CP30540	256K	12ms	3.5x1	$379
1.0GB	CPF1060S	256K	10ms	3.5x1	$695

WESTERN DIGITAL

250MB, IDE, 13ms, 2 Yr. Warranty	$220
340MB, IDE, 12ms, 3 Yr. Warranty	$239
420MB, IDE, 13ms, 3 Yr. Warranty	$259
540MB, IDE, 12ms, 3 Yr. Warranty	$348

Maxtor

IDE

131MB, IDE, 14ms, 1 Yr. Warranty	$148
245MB, IDE, 15ms, 1 Yr. Warranty	$220
345MB, IDE, 14ms, 2 Yr. Warranty	$235
540MB, IDE, 2 Yr. Warranty	$342

SCSI

290MB, SCSI, 14ms, 2 Yr. Warranty	$265
345MB, SCSI, 14ms, 2 Yr. Warranty	$298
540MB, SCSI, 8.5ms, 256K Cache, 2 Yr. Warranty	$385
1.2GB, SCSI, 8.5ms, 256K Cache, 2 Yr. Warranty	$1195

Quantum

540 MB IDE **$336**
128K Cache, 3.5X1"

270 MB IDE **$219**
128K Cache, 3.5X1"

1.2GB SCSI **$895**
512K Cache, 10ms

IDE

Capacity	M/N	Cache	Speed	Size	Price
170MB	ELS170A	32K	17ms	3.5x1	$179
270MB	LPS270A	128K	Fast	3.5x1	$219
540MB	LPS540AT	128K	Fast	3.5x1	$336

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Capacity	M/N	Cache	Speed	Size	Internal
170MB	ELS170S	32K	17ms	3.5x1	$199
270MB	LPS270S	128K	12ms	3.5x1	$269
540MB	LPS540S	512K	10ms	3.5x1	$375
1.0GB	PD1080S	512K	10ms	3.5	$689
1.2GB	PD1225S	512K	10ms	3.5	$895
1.8GB	PD1800S	512K	10ms	3.5	$1025

Seagate

263MB, IDE, ST3290A **$218**

Capacity	M/N	Cache	Speed	Sixe	Int.
341MB	ST3390N	256K	12ms	3.5x1	$299
456MB	ST3550N	256K	12ms	3.5x1	$355
525MB	ST3600N	256K	10.5ms	3.5x1	$395
1.05GB	ST11200N	256K	10.5ms	3.5	$715
1.0GB	ST31200N	256K	9ms	3.5x1	$705
1.4GB	ST41651N	256K	15ms	FH	$1099
1.9GB	ST42100N	256K	13ms	FH	$1489
2.1GB	ST42400N	256K	11ms	FH	$1699
2.1GB	ST12400N	256K	9ms	3.5	$1499
2.9GB	ST43400N	512K	10ms	FH	$2199
2.9GB	ST43401N512K	Fast Wide SCSI II		5.25	$2499

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• 128MB Removable Optical Diskette • Rewritable • 3.5" Diskette Size of Floppy • Unlimited Storage • Ideal for Data Mobility • Fast Access time and Data Transfer. • ISO Standard • 128MB Rewritable Optical SCSI Drive

Internal Drive **$789**

- Bare Optical Drive
- 2511A
- Fast 30ms Seek Time
- 3600RPM
- Low Profile, Only 1"
- 256K Cache

External Drive **$899**

- External Optical Drive
- 2511A
- Includes 1 cartridge
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SCSI

Capacity	M/N	Cache	Speed	Size	Internal
1.0GB	M2694ESA	256K	10ms	3.5	$749
2.0GB	M2654SA	256K	12ms	FH	$1395
Descartes	PCMCIA Card Reader/Writer For Desktop PC				$229

IDE

Capacity	M/N	Cache	Speed	Size	Price
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MICROPOLIS

MC2210S
1.0GB Fast SCSI II 3.5" 10ms Seek Time 5400 RPM **$699**

IDE

Capacity	Model	RPM	Speed	Size	Internal
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1.75GB	MC2217A	5400	10ms	3.5	$1095

SCSI

1.0GB	MC2210	5400	10ms	3.5	$699
1.0GB	MC2210AV	Audio/Visual			$945
1.4GB	MC1908	5400	11ms	FH	$1155
1.75GB	MC2217	5400	10ms	3.5	$1015
1.75GB	MC2217AV	Audio/Visual			$1165
1.8GB	MC1548	3600	14ms	FH	$1025
2.0GB	MC1926	5400	11ms	FH	$1475
3.0GB	MC1936	5400	11ms	FH	$2095

SyQuest Removable Cartridge Drives

Cartridge for 88MB/105MB $95/59

88MB	Internal	$279	88MB	External	$469
105MB	Internal, IDE	$239	105MB	Internal, SCSI	$279
105MB	External, SSI	$429			

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3.5" DS/HD Disk 25 pack $9.99

Motherboards

TYPE	DESCRIPTION	PRICE W/O CPU
Pentium PCI/VLB	OPTI, ISA/PCI/VLB, 256K up to 512K, 0MB up to 128MB, 72-pin RAM	$495
Pentium PCI 90	Neptune, ISA/PCI, 256K, Built-in PCI IDE & High Speed serial port & parallel port, 0MB up to 128MB, 72-pin	$475
Pentium PCI/60/66	Mercury, ISA/PCI, 256K up to 512K, 0MB up to 128MB, 72-pin RAM	$495
Pentium VLB/66/60	OPTI, ISA/VLB, 256K up to 512K, 0MB up to 192MB, 72-pin RAM	$425
Pentium PCI/EISA	Intel, 66/60, ISA/PCI/EISA, 256K up to 512K, 0MB up to 192MB, 72-pin	$485
486PCI Local Bus	Saturn, 66/60, ISA/PCI, 256K up to 512K, 0MB up to 128MB, 72-pin, Built-in IDE & High Speed serial port, 1 parallel port	$315
486VLB/DX4	SIS, ISA/VLB, 256K up to 1MB, 0MB up to 64MB, 72-pin, support 5V & 3.3V, any speed CPU, Green	$195
VESA 72-Pin	SIS, ISA/VLB, 128K up to 1MB, 0MB up to 64MB, 72-pin, Green	$165
VESA/USA	Made in USA, 8 ISA, 2 VESA Slots, Contaq-A Chipset, ZIF Socket, 128K Cache up to 256K, 0MB RAM up to 128MB	$125
EISA/VESA	8 EISA, 2 VESA Slots, Zif Socket, AMI BIOS, 256K Cache up to 1MB, 0MB up to 256MB	$295
EISA/VESA	7 EISA, 1 VESA Slots, SIS Chipset, AWARD BIOS, 256K Cache, 0MB up to 128MB	$285

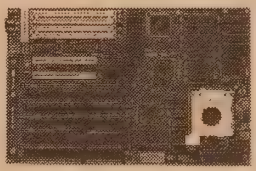
Micronics

VESA Local Bus/256K/DX-33 CPU	$649
VESA Local Bus/256K/DX2-66 CPU	$759
JX30 VESA Local Bus/256K/DX2-66 CPU	$864
EISA VLB/256K/DX-33 CPU	$845
EISA VLB/256K/DX2-66 CPU	$955
PCI/256K/33/66	$685/795

AMI Motherboard

Enterprise III EISA/VESA /256K/33/66 CPU	$865/975
Enterprise IV EISA/VESA /256K/33/66 CPU	$745/855
Super Voyager VL-B/256K/486DX-33/66 CPU	$595/705
Excalibur Pentium VLB MB 512K/60Mhz CPU	$1595
Excalibur Pentium EISA PCI 256K/60MHz CPU	$1685
Excalibur Pentium ISA PCI 256K/60MHZ CPU	$1595

Pentium 100/90 PCI/VLB Motherboard



OPTI Chipset, 256K Cache
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Zoltrix 9600/2400 Fax Modem	$59
Zoltrix 14400 Fax Modem	$89
US Robotics 14400 (Int)	$108
US Robotics (Ext)	$135
DSI 14.4K Internal Fax Modem	$129
DSM 1914XE Turbo External 19.6 Modem, 14.4K S/R Fax	$249
DSM 1414XB Internal w/ UART 16550 14.4K Modem, 14.4 S/R Fax	$139
DSM 1414XA External, Rockwell Technologies 14.4K Modem, 14.4 S/R Fax	$169
DSM 1414XP Mini-Pocket, 14.4K Modem, 14.4 S/R Fax	$229
DSM 2442XE External w/ Data-Tack Switch 2400 Modem, 9600 S/R Fax	$99
Hayes-Opt 144-F External Fax Modem	$385
Hayes-Opt 1441-F Internal Fax Modem	$369
Hayes-A144E-F Accura External Fax Modem	$239
Hayes-A144I-F Internal Fax Modem	$219
Hayes Accura, 28.8K, External Fax Modem	$279
Intel SatisFaxtion 400, Internal	$269
Intel 14.4K External Fax Modem	$149
Intel 14.4K Internal Fax Modem	$119
Mitac 14.4K External Fax Modem	$149
Mitac 14.4K Internal Fax Modem	$129
Supra FaxModem, 14.4 Internal/External	$115/$129
Smartone 14400 Fax Modem Internal	$125
NUVO 9600 SendFax Modem 4800 Receive Fax 2400 Modem	$49
NUVO 14400 Fax Modem Internal	$119
Tyin 2000 Fax Modem Audio Card	$209

Tape Back-Up

VIPER (SCSI)

2150S, 250MB VIPER, 6MB/Min	Internal	$329
	External	$449
2525S, 525MB VIPER, 6MB/Min	Internal	$559
	External	$579

ARCHIVE (SCSI)

(For IBM Compatibles, SUN, MAC & NeXT) Anaconda, 36MB, Min, SCSI-2, 1/4"" Tape Unit

1.3GB 2750	Internal	$799
	External	$899
2.0GB 2800	Internal	$999
	External	$1099

SUMMIT

With Central Point Backup Software, Runs off Floppy Port

120MB	Internal SE-120	$129
250MB	Internal SE-250	$159

COLORADO MEMORY SYSTEMS

Uses 2120 Tapes, Runs off Floppy Port

120MB	Internal DJ10 Jumbo 120	$99
250MB	Internal DJ20 Jumbo 250	$159

TRAKKER

Parallel Printer Port External Tape Backup Systems, Runs off Parallel Printer Port

120MB	External Trakker 120	$283
250MB	External Trakker 250	$323

WANGDAT (SCSI)

SCSI 4mm DAT

2.0GB (3100DAT)	Internal	$999
	External	$1099
4-8GB (3200DAT)	Internal	$1099
	External	$1199

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Tape-Stor

250MB	Internal Tape Backup	$156

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1MB VRAM	$275
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with ATi Bus Mouse	add $25
Graphics UltraPro 2MB EISA	$349
Graphics Ultra Pro VLB Mach 32	
1MB VRAM	$295
2MB VRAM	$349
MACH32 - 16.7 Million Colors	
1MB DRAM	$295
2MB DRAM	$349
with ATi Bus Mouse	add $25
MACH32 PCI 2MB	$445
graphics Pro Turbo PCI or VLB 2MB/4MB	$459/729
2MB upgrade module	$299

Stealth Pro 1MB/2MB ISA	$239/329
Stealth Pro 1MB/2MB VLB	$255/335
SpeedStar Pro VESA or ISA	$119
Stealth 24 VESA or ISA 1280x1024	$155
Viper VLB 2MB VRAM Accelerator	$339
Viper PCI 2MB VRAM Accelerator	$359
Diamond Stealth 32 PCI 1MB/2MB	$179/239
Stealth 64 VLB 2MB/4MB	$349/499
Stealth 64 PCI 2MB/4MB	$349/499
Viper Pro/4MB	$CALL

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Celsius VLB 1MB VRAM/2MB	$179/239
Fahrenheit 1280 Plus 1MB	$139
Fahrenheit 1280 Plus VLB 1M/2M	$139/189
Fahrenheit VA or VA/VLB 1M/2M	$159/209
Kelvin 64 VLB/PCI 1MB/2MB	$189/235

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Spider 32VLB	
VESA Local Bus, 1280x1024 in 256 colors, 1024x768 @ 72Hz	
1MB DRAM	$95
2MB DRAM	$135
Spider 32VLB Plus	
VESA Local Bus, 1280x1024 in 256 colors, 1024x768 @ 72 Hz, 30% Faster Than VLB	
1MB DRAM	$115
2MB DRAM	$159
Black Widow Plus VLB/PCI	
VLB, IIT AGX-015, XGA Graphics Engine, VRAM 32-bit OS/2 2.1 Drive Support, up to 100Hz Refresh Rate	
1MB VRAM	$179
2MB DRAM	$239
Spider 64 VLB/PCI 2MB/4MB	**$189/299**
Spider 256 Cache VLB 1MB/2MB	**$139/189**

CARDEXPERT

ET-4000	1MB ISA	$85
ET-4000W32 VL-B	1MB	$125
ET-4000W32i VL-B	2MB	$185
ET-4000 W32P PCI	1MB/2MB	$195/$225
ET-4000	1MB ISA True Color	$95
Cirrus Logic 5420	1MB ISA	$59
Cirrus Logic 5426 VLB	1MB	$95
Cirrus Logic 5428 VLB	1MB	$99
UMC VLB VGA	1MB Built-in IDE/2S1P1G	$115
WD Chipset ISA	1MB	$95

AMI

Fast View VLB	2MB RAM, Windows Accelerator Card	$359

matrox
VIDEO PRODUCTS GROUP

MGA-ULT/2/A	2MB ISA/VLB	$499
MGA-IMP/3/A	3MB ISA	$739
MGA-IMP/3/V	3MB VLB	$739
MGA-PRO/4.5/V	4.5MB VLB	$1595
MGA-PRO/4.5Z/V	Z-Buffer VLB	$1895
MGA-PCI/2	2MB PCI	$439
MGA-PCI/2+	Upgradeable to 4MB	$499

9

9GXI L-25F	3MB ISA	$1259
9GXE L-10	1MB ISA	$249
9GXE L-10	1MB VLB	$249
9GXE L-11	2MB ISA	$345
9GXE L-11	2MB VLB	$345
9GXE L-12	3MB ISA	$425
9GXE L-12	3MB VLB	$425
9GXE L-14	4MB ISA	$595
9GXE L-16		$895
9XE64	1MB PCI/VLB	$199
9GXE64	2MB PCI/VLB	$249

Hercules

HG720	Graphite VL Pro 2MB	$409
HG310	Graphite Pro 1MB ISA	$279
HG610	Graphite Pro 1MB VLB	$289

DYNAMITE

D301 PRO	1MB ISA	$189
D302 PRO	2MB ISA	$259
D601 PRO	1MB VLB	$189
D602	2MB VLB	$259
D902	PCI 2MB	$289
SVGA Video Cards		
SVGA 1024x768	1 MB	$59
SVGA VESA Local Bus		$79

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Controllers

adaptec

SCSI Controllers

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1542C	Bus Master Complete Kit	$239
1542C+	Bus Master Kit with Corel SCSI	$312
2742	EISA Kit 14HDS	$364
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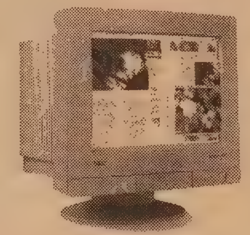

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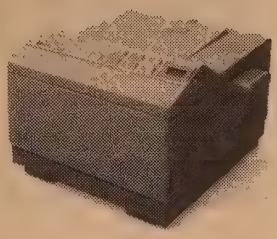

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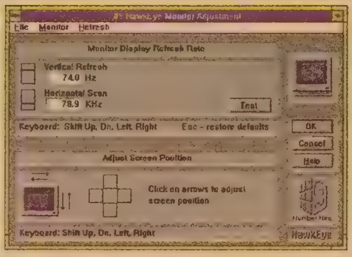
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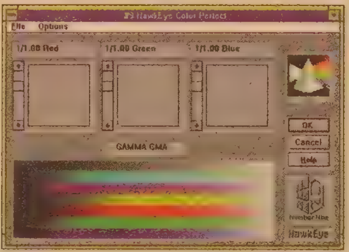
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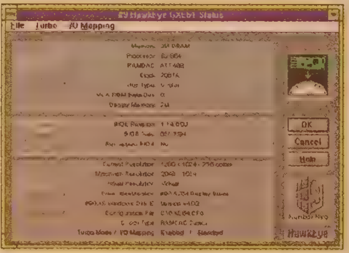
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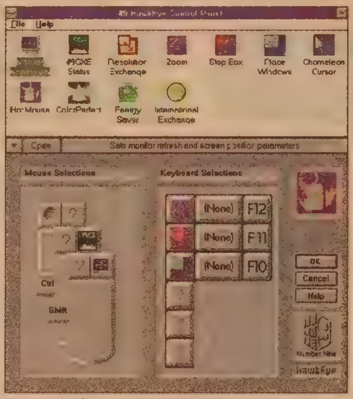
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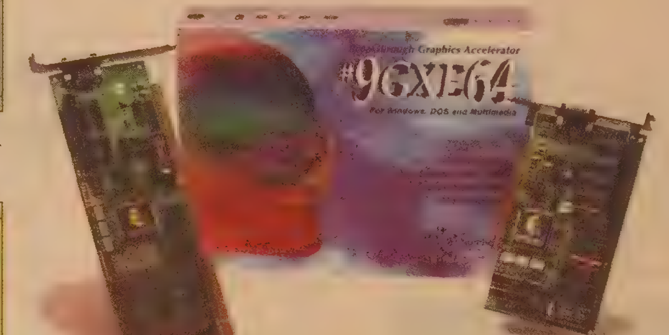

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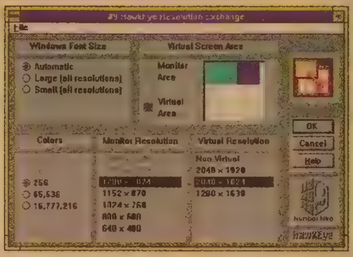
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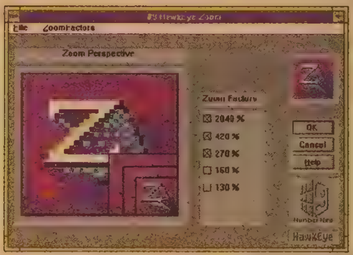
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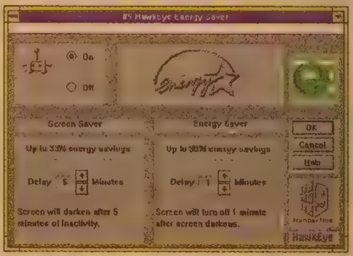
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PALMTOPS • BY MITSU HADEISHI

Thoughts On General Magic

Plus: WinPDA, New Newtons, And More

So far, General Magic's technology has been very well received in the personal digital assistant world. Several manufacturers, including Motorola (with its Envoy personal wireless communicator), Matsushita (known among other things for its best-known brand name, Panasonic), Philips, and Sony, are building PDAs which utilize the software.

The company has two products, Magic Cap and Telescript. (See "From Mac to (General) Magic," Issue #120) Magic Cap refers to an operating system and user interface, and Telescript refers to a kind of agent-based network communications standard.

MagicCap Is A User Interface

MagicCap PDAs will share a common user interface.

From a graphic design point of view, the layout of the interface seems to me a bit awkward; the icons are oddly shaped, and they don't seem to be placed very elegantly on the screen. The attempt is to create a "virtual space" in which the icons are objects in that space, which is a good thing, but it is rendered with somewhat primitive-looking graphics which don't really seem to work very well, visually speaking, in that space.

Nevertheless, the basic notion of creating a user-friendly interface by using everyday metaphors is good, and there is no doubt that many people could pick up a MagicCap-based PDA and, without much effort, be able to use it.

The screen starts out with a view of a desk (presumably "your" desk), with a telephone, Rolodex, postcard, notepad, and some sort of difficult-to-identify thing which I presume is a calendar, all lying on top of the desk. On the back wall is an "in" and an "out" folder, a clock, a filing cabinet, and in the desk itself is an "envelope drawer" and a "calculator drawer." In addition to this there's a set of rather cryptic-looking icons which run along the bottom of the screen, some of which are self-explanatory, and some of which are hard to identify. Basically, the layout seems usable, if not very visually appealing, and not quite as self-evident as the designers might want it to be.

Instead of a menu system, Magic Cap provides a "virtual hallway" which you can walk down to access various services, and which can be extended indefinitely. "Outside" are other "buildings" in the "town," through which you access various services (such as America Online). Until Magic Cap hardware ships, it's difficult to evaluate how well this works.

Extensive "power user tools" are mentioned, which allow advanced users to create their own interface appearance and structure. This could well make it easier to work around apparent deficiencies in the standard interface.

MagicCap does not support handwriting recognition at this time; like the Sharp Wizard 9000-series PDAs, the MagicCap platform uses the pen primarily for entering diagrams and navigating through the user interface. Unlike the Wizard, however, MagicCap-based PDAs are not designed to have keyboards; the Envoy, for example, does not. To enter text, you use an on-screen keyboard, tapping out the letters with either your fingers (using the touch-sensitive screen), or using a stylus.

> I'd love to have the option of using agents when I have a well-defined task for them to do, but I'm not sure I want that to be my only option.

Agents Do Your Work For You

Telescript, the other major product from General Magic, is designed as a standard for personal network communications. Telescript is a programming language, much like PostScript for printers, which allows you to send what are called agents across the network to do various tasks for you. Rather than simply accessing various online services, you create an agent to go across the network for you, getting you the theater tickets you want, making your dinner reservations, and getting the cheapest deals on air travel.

The theory is that since the agent is doing the negotiations for you, you don't have to stay online for very long (saving you a lot of expensive network charges). You just send the agent off and let it find what you need; later, you can come back and check what it's done.

Sounds great in theory, though it raises a variety of questions about whether this is what you'd really want in practice.

The potential of this technology is quite awesome. Sending platform-independent programs across the Net instead of just dumb data allows far greater flexibility than current designs. My feeling is that this power will be used in ways not yet envis-

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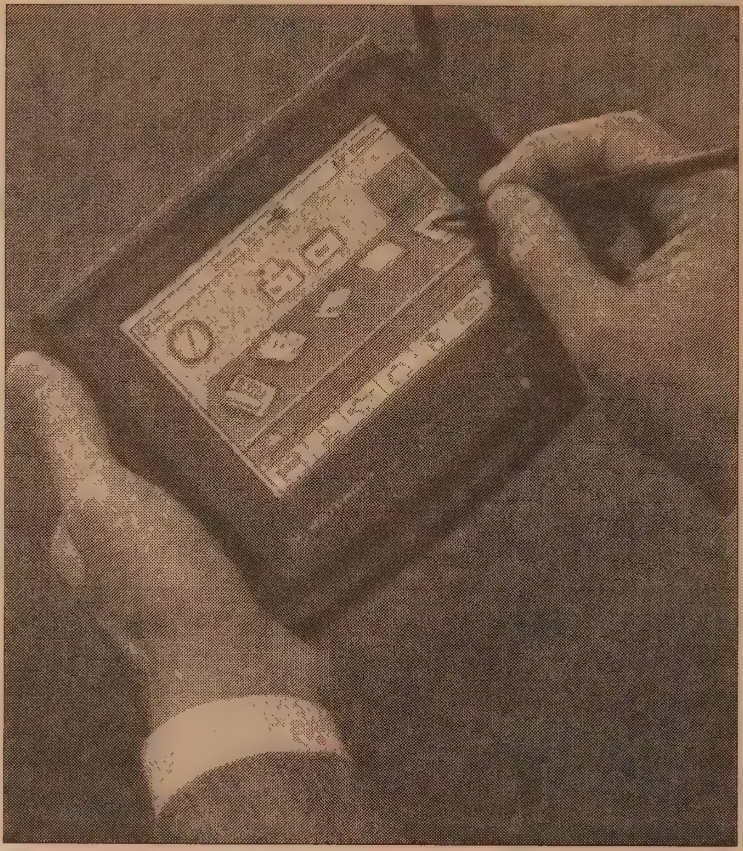

aged by the current designers of the technology, because of its natural extensibility and flexibility.

However, a problem I have with the idea of delegating all my work to agents is that it takes me, the user, out of the loop. I can create them (or rather, the applications I'm using can create the agents for me), and send them off, but once they're gone, then I have no more say in the matter. The implication is that if I tried to interactively use these services in real time, I would end up spending huge sums of money paying for packet transmission charges while I search the Net myself.

Sure, I'd love to have the option of using agents when I have a well-defined task for them to do, but I'm not sure I want that to be my only option. Agents can't explore for me if I don't know what I want already—they will only work if I have a clear idea of what it is I want in advance. What if I want to read the menus of the restaurants before I book a reservation? What if I don't know what plays are in town, or what particular stereo system I want to buy? Sure, I can always try to program better and better agents, but there is always a limit to how smart the agents can be. There is a point of diminishing returns.

It seems to me that agents are a great option, but I'd like to also have the (inexpensive) option of exploring the Net on my own, directly, interactively. That means I need to be able to get answers in human-readable form, quickly and cheaply, using the bandwidth of the networks I'm connected to.

I have a sinking feeling that the whole design of Telescript is intended to deal with the fact that this bandwidth might be rather expensive; so, instead, I'm supposed to be glad that I can send off a little computer program to do the work for me, lessening the overall cost of information transfer.

That would be fine if I could make a little clone of my human awareness and send it off; unfortunately, all I can do is hope that I've created an agent which will do what I really want it to do. That's a lot like the "batch processing" of the bad old mainframe days, when you didn't have instant interactive responses to your queries, but instead submitted the computation to the mainframe in a "batch," and got the results back much later.

I'm not sure I'd want to completely sacrifice interactivity for that "privilege." The best of both worlds is what the users should have available to them: agents for the times they want the work done off-line, and direct interactivity when they want to search for themselves.

WinPDA

The WinPDA architecture is an attempt by industry leaders to create an alternative PDA hardware standard based on Microsoft's Windows operating system. The WinPDA architecture is, however, both hardware- and software-based.

The hardware includes the VLSI Technologies Polar chipset, which combines many PDA functions, including hardware-based pen input tracking, and the AMD 386SC low-power processor. The availability of this chipset would allow clone manufacturers, in theory, to build low-cost standard pen-based PDAs. Rumor has it that machines based on this platform will not be available until next year; watch this space for more developments as they progress.

continued on page 162

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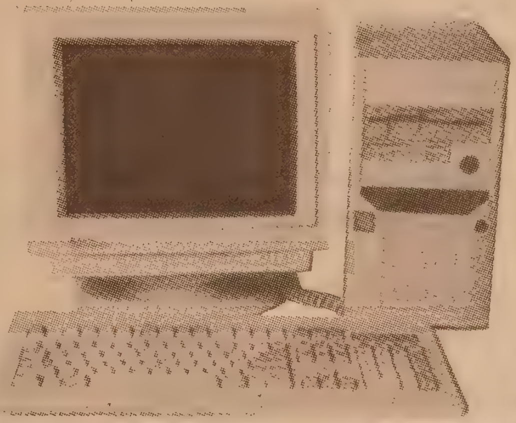

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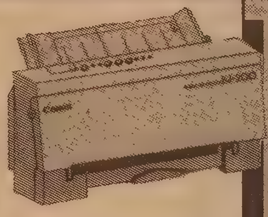

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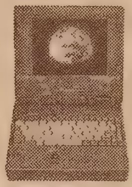

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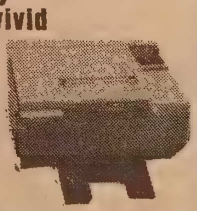

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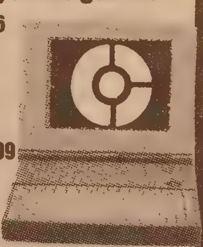

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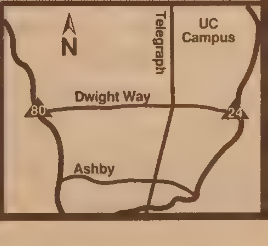

LAPTOPS • BY ED KAHN

Traveling With Your Data

File Transfers From Laptops To Desktops

Unless you use your laptop as your only computer, you inevitably face the problem of how to easily and conveniently transfer files to and from your different machines. In the old days, we simply created files on a floppy disk and then carried them with us to the second machine. I still know people who keep all of their working files on floppies and install only the application programs on the hard drive. This procedure gets the job done, but it really defeats the purpose of fast, large hard drives. As you might expect, as hard drive capacity grew and more complex file structures evolved, copying files between hard drives via floppy disks became quite a chore.

The first powerful program to address this problem was LapLink, from Traveling Software. This program became the industry standard and is now in version five. LapLink V will do practically everything you could hope for in helping to copy files from computer to computer. In its earlier versions, you had to have the two computers close enough to connect them by a cable. In later versions, it was possible to transfer files over a modem if the program was installed on both computers. In fact, installation onto a second machine can be done over the phone lines. But since files move slowly over phone lines, it is more efficient to connect by cable if you are doing file transfers on a regular basis.

LapLink V can be configured to move just about any combination of files. For instance, it will copy all files to make the directories identical on two computers. You can set it to coordinate the two computers, making sure that the latest version of a file will be on both computers. You can choose to ignore certain files, directories, subdirectories, or types of files. In short, you can do just what you need to do. This is helpful when I get a new computer and want to transfer all of my data and application files, but do not want to transfer either the DOS or Windows files, onto the new computer. To do this, I simply connect the computers through the parallel cable—which gives a faster transfer rate than the serial connection—set up my criteria, and begin the transfer. LapLink V displays what percent of the job is done. It's like magic. If you change computers, this program is a must.

CommWorks

Traveling Software recently decided to bundle LapLink with a collection of other communications programs and market them as a suite called CommWorks. CommWorks includes four programs in addition to LapLink. LapLink Remote Access allows you to connect to another PC and use its printers and drives as if they were a part of your computer. You can connect through serial or parallel cables, infrared connections, or over a modem. Once you are connected, it will be like using the remote computer as a part of your system. Laptop users can connect to a home office and then print out reports or access files.

TSFax is a simple yet powerful fax program that lets you send and receive faxes on your computer. What I like about this program is that it is simple enough for anyone to use, yet it does all of the things needed in a basic fax program. You will, of course, need a modem that is capable of faxing as well as working with data. Once you have received the fax, you can save it in a file, print it, view it, or have it automatically sent to another location. There are lots of fax programs on the market these days, but for basic faxing needs, this one seems to get the job done.

LapAlert runs in the background but keeps an eye open to let you know if files on your computer are changed by a remote user. This program will have little application unless you are also using LapLink Remote Access or TSFax.

> LapLink V will do practically everything you could hope for in helping to copy files from computer to computer.

The final program that comes with CommWorks is a basic communications program called TSOnLine. I played with this module for some time and was impressed by its features. It can easily connect to a bulletin board or computer service and comes with scripts that will let you log in with a single click of the mouse. If you have a particular number that you connect to regularly, you can set up an icon in the Program Manager (all of these modules run in Windows 3.1) that will open the program and then dial this number. If you set up a script—easy instructions are included for doing this—you can have the program automatically log on with your ID and password. You can get even more complex by constructing scripts that do a series of functions for you automatically. A learn feature lets you construct the scripts by performing the action one time manually. I could say more about this program, but it is enough to say that if you are looking for a communications program that is well documented and will do most of the basic tasks, TSOnLine may be the one for you.

One of the advantages of CommWorks is that it presents a unified interface for all of the modules. This collection of programs, for $199.95, is a bargain and works within Windows.

FileRunner

While I highly recommend LapLink as a file transfer program, there is one thing it

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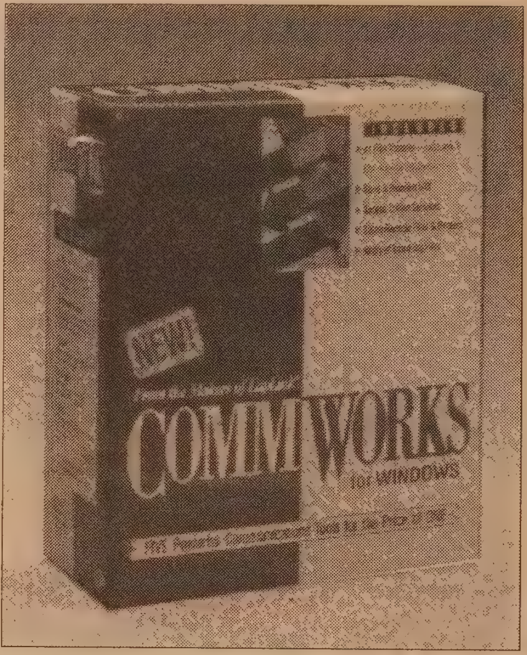
does not do. It will not let you travel from place to place without a computer, taking only the files you will need when you arrive at your destination. Often, my desktop is at one location and my laptop at another. Traveling between these two locations, I have not had a convenient way of taking my work along. I was left with the old copy-files-to-disk routine and it was always a nuisance.

A couple of years ago, FileRunner came on the market. This was the answer to my prayer. Installed on each of your computers, you make a set of diskettes to take with you. You set up the disk by defining which directories and kinds of files you want. For instance, on my first disk, I have all of the files in my telephone directory that begin with "personal." I also have all of the files in my letter subdirectory. In all, I have ten classifications of files that I want to take along. When I get to the other end, I call up the program, insert the disk, and hit two keys. The rest is automatic.

This program is a must for anyone who uses multiple computers in more than one location. It doesn't take the place of LapLink, but I use it almost daily and use LapLink only on rare occasions. You need both of these products. FileRunner will hold up to three hundred files on a 3.5" floppy disk, and now comes in DOS, Windows, and Mac versions. I prefer the DOS version over the Windows version. Mac users, fortunately, will not have to make a choice. But all versions will get the job done and I can't recommend them too highly. A small, well-run company publishes FileRunner, so keep looking if you have trouble finding it in your local store.



continued on page 168

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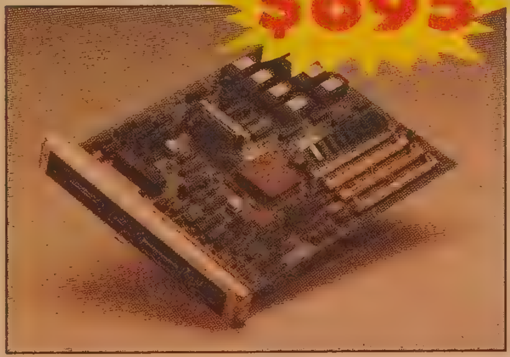

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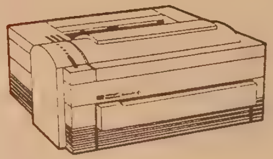

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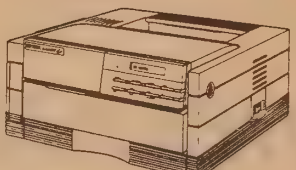

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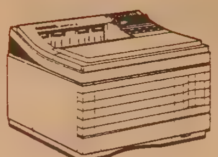

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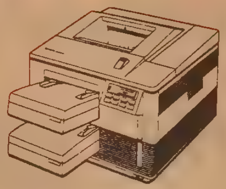

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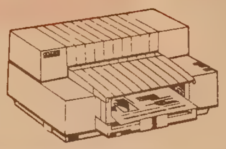

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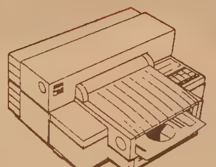

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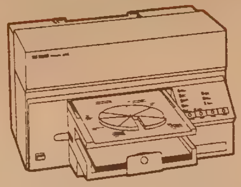

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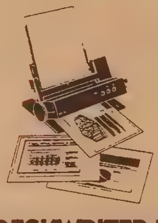

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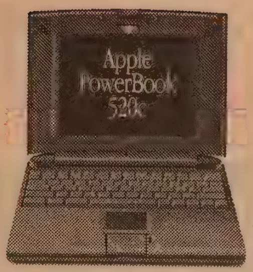

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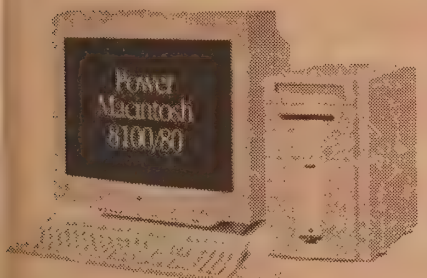

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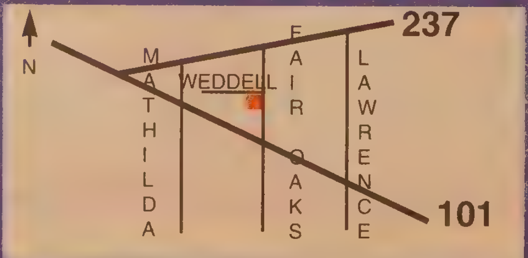

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A Hidden Tax on Technical Workers

Pending Legislation Seeks To Resolve Multiple Payment Of State Unemployment Insurance Tax

California imposes a hidden unemployment insurance tax on workers who go from job to job, effectively taxing not the amount of wages, but the number of bosses served. Programmers, technical consultants, tech writers, and software developers are convenient fuel to this revenue siphon because of the frequency with which many change workplaces.

> Since the EDD does not consider self employment income to be wages, partnership distributions to partners generally aren't subject to unemployment taxes.

Fortunately for tech workers and those engaging their services, a little tax awareness and planning might save a few percent of wages. There may soon be some legislative changes coming to the rescue, too, but more about that later.

In a nutshell, an unemployment insurance tax is imposed on employers, based generally upon wages paid for employment within the state. The tax is imposed on only the first $7,000 of taxable wages paid by each employer to each employee for the year. Because of the maximum amount of wages exposed to the tax, the rate structure is referred to as the "$7,000 ladder." The standard tax rate is 3.4%; however, it fluctuates according to the employer's "experience rating," or history of claims. The tax is administered by the Employment Development Department (EDD).

The classic employment situation envisioned by the EDD is personified by Rosie Ribbetori, a blue-collar worker operating a machine. During 1994, Ribbetori works for only one employer, for $30,000-plus bennies. The EDD taxes her employer on the first $7,000 of her wages. After running up that $7,000 ladder, the tax is capped, and the employer has no further exposure on Ribbetori's wages, even if she earns $1 million.

In contrast, look at Poindexter Numlach, a successful and popular database programmer who easily finds employment from project to project making about $50 an hour. In 1994, Numlach will earn $70,000 from ten employers who pay him $7,000 each. At the end of the year, Numlach receives ten W-2s.

Each time Numlach changes jobs, he has to run up the $7,000 ladder anew. Since he has ten employers, they pay the unemployment insurance "premium" ten times, even though he could make no more of a claim than if he had only one employer. In essence, the EDD has sold Numlach's employers the same Brooklyn Bridge ten times.

Like the Broadway producer who sells 1,000% of the interests in his show, the EDD has held ten firms each completely responsible for Numlach's coverage within the same twelve month period.

Unlike Ribbetori's employer, whose tax bill is only $238, Numlach's employers, assuming the standard rate applies, cumulatively pay $2,380. Firms tend to pass on this tax (or their fear of it) in the form of lower wages. Moreover, because their tax rate increases with the number of claims filed by anyone who recently worked for them, some will hesitate to hire project workers.

Suggestions To Avoid Multiple Taxation

To avoid multiple taxation, various planning techniques can be explored, including incorporating.

Consider Chris Crash, a specialized software developer charging $70 an hour for projects related to aviation and map reading. Rather than offering these services directly, Crash incorporates. Crash Corporation, rather than Crash personally, enters into various contracts to provide programming and design services, and Crash Corporation, not the customer, pays the salary. Because Crash now has only one employer, namely Crash Corporation, the $7,000 ladder need only be run up once. The clients are off the hook for employment taxes (in terms of both direct tax payments and future increases in experience rating assessments), so they have more budget to pay for the services.

Having incorporated, there are other tax advantages as well. For example, the cost of Crash's medical insurance is fully deductible by the corporation. Even if Crash doesn't want ordinary medical insurance, the corporation might adopt a self-insured medical reimbursement plan and deduct all of the medical expenses. There are legal, non-tax advantages to incorporating as well, but also some complications.

Under the wrong set of circumstances, personal service corporations such as software engineering businesses can be assessed a whopping federal income tax rate of 74.6%. This consists of the personal service corporation income tax rate of 35%, and a special penalty tax of 39.6%. These top rates are typically avoided by the business paying out all its earnings, until there's nothing left to tax. (For a better explanation, see the MicroTimes reprint referred to at the end of this article.) Even in the best circumstances, California corporations are usually subject to a minimum tax of $800.

For those not wishing to incorporate, another approach is forming a partnership. In this alternative, the partnership, rather than the corporation, enters into the service contracts.

Partnership draws are not considered wages. Instead, each individual partner is generally considered self-employed. Since

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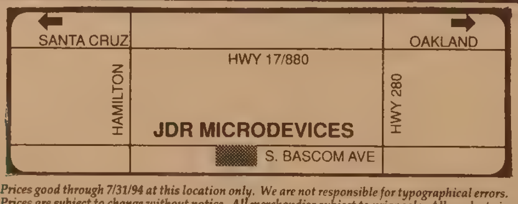

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Accounting *continued....*

the EDD does not consider self-employment income to be wages, partnership distributions to partners generally aren't subject to unemployment taxes.

Of course, there are other tax (and not-tax) considerations to incorporating or forming a partnership, so be sure to consider the whole picture before making a decision, and seek professional advice when appropriate. If the business structure is an obvious sham created solely for tax avoidance, the arrangement may not be recognized by the powers that be for tax purposes. The government tolerates a certain degree of creativity to spur capitalism along, but pigs get slaughtered.

Yet another way to avoid the EDD's reach is to structure a deal with the employer such that the worker is an independent contractor. For tax purposes, the distinction between an employee and contractor is generally based on the common-law test of control over the worker and how the work is done. Currently, there's no consistent way to tell how the test applies to contract techies, so such arrangements involve an element of risk. Define the terms carefully in writing from the outset, addressing as many issues of control as practical, in case of a future audit.

Proposed New Legislation

Fortunately, the State Legislature may soon clarify this issue. California Assembly Member Charles Quackenbush has introduced A.B. 3519, intended to reduce uncertainty in determining whether a worker is an employee or an independent contractor. A key provision is that a taxpayer could ask the EDD for written advice in advance about the structure of such arrangements, and the EDD would be bound by it's own reply.

In mid-April, Lewis Shireman, vice president of the Computer Software Industry Association, and I testified in Sacramento before the Revenue and Taxation Committee in support of A.B. 3519.

Shireman pointed out that this legislation would add predictability to the assessment process. "The bill clearly provides the computer industry with the opportunity to dispel one of the negative myths associated with using computer consultants. Clients have feared retroactive reclassification of consultants as employees with the resultant penalties. The bill would remove this fear for California companies" for purposes of the EDD.

I testified as to how the current uncertainty inhibits the hiring of legitimate independent contractors, and unfairly forces some workers through the EDD wringer repeatedly. (As this story goes to press, it is rumored that the Governor is threatening a veto.)

Rules & Regulations

While state employment tax hardly impacts one's income the way federal taxes can, anyone in the computer industry should know the politics and economics involved, because the splash is still big enough to soak many technical professionals.

Officially, unemployment tax is a mandatory insurance premium covering the cost of unemployment benefits. When the EDD pays claims, that drives up the employer's tax rate; just as traffic accidents increase your auto insurance.

But the EDD is a highly politicized agency with less obvious agendas. In essence, they subsidize some industries at the expense of others. Rather than being paid by all employers uniformly according to the claims of each, the annual unemployment premiums are capped in a way that holds down the cost for those industries most responsible for unemployment.

A manufacturer might pay only a small amount on behalf of a semi-skilled laborer who, after being laid off, can survive off the unemployment system for months. Unlike the technical worker, whose career growth depends upon a constant stream of projects, the laborer is less motivated to take a lower-paying job just to work. The technical worker avoids being on the dole for long or will begin to rust, in terms of professional momentum.

This creates a hidden subsidy for manufacturing, construction, and agribusiness at the expense of skilled services.

Unemployment tax revenues go into the state's unemployment insurance trust fund, which by law is designed to be self-sustaining: for every dollar paid out, someone pays a dollar in.

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Accounting *continued....*

Because manufacturing and construction are in the doldrums, these industries are bleeding the insurance trust fund even faster than usual. To keep that trust funded, someone out there must get clobbered. Technical workers and service industries are among the currently disfavored.

The EDD has promulgated industry-by-industry regulations providing guidance on employer vs. independent contractor status. These regulations are largely identical to current federal guidelines, but they white-out one or two favorable lines—insufficient to arouse much opposition.

The new rules look and feel like well-established and equitable federal guidelines. However, the EDD would now tell you that they aren't bound by federal precedent because they now go by their own set of rules. Authority and precedent that the IRS accepts would no longer work for them, and you could be socked with back taxes, interest, and penalties if a worker treated as an independent contractor is determined to be an employee.

When such misfortune happens, employers often just throw in the towel and pay the back taxes, because the EDD offers to waive penalties if the employer treats the workers differently in the future, and because it's too expensive to fight. Intimidated employers pay employment taxes on the fees of programmers and other technical workers, due to the chilling effect of risking misclassification. Ultimately, the EDD would substitute established federal law with their own, political agenda-toting bureaucrats.

Because the software industry is on the paying rather than the receiving end of this subsidy system, they have actively worked to limit the EDD's grasp. Among other things, they are warding off EDD attempts to assert that contract programmers are employees.

Meanwhile, big, blue-collar labor unions are lobbying to get independent contractors reclassified as employees, so that more employers can subsidize the system.

Contract techies are thus finding it harder to get work as non-employee, independent contractors. With each W-2 job, they climb that $7,000 ladder and the EDD cleans up.

No matter how the current battle turns out, technical professionals and those using their services still need to plan their tax strategies. The weapons below will help to arm you for the onslaught.

- Assembly Bill 3519, as introduced by Assembly Member Quackenbush.
- An issue of *Software Watch*. Legislative Update Newsletter of the Computer Software Industry Association, representing over 3,000 software companies in California.
- "Horwitz, Worker Status Test Unchanged by Supreme Court" (*Taxation for Accountants, June 1992*), reprinted with permission of Warren Gorham Lamont.
- "Developers and Programmers—To Incorporate or Not?" *MicroTimes*, September 1993.
- IRS Revenue Ruling 87-41, listing the 20-factor test used by the IRS in determining if an individual is a common-law employee. ■

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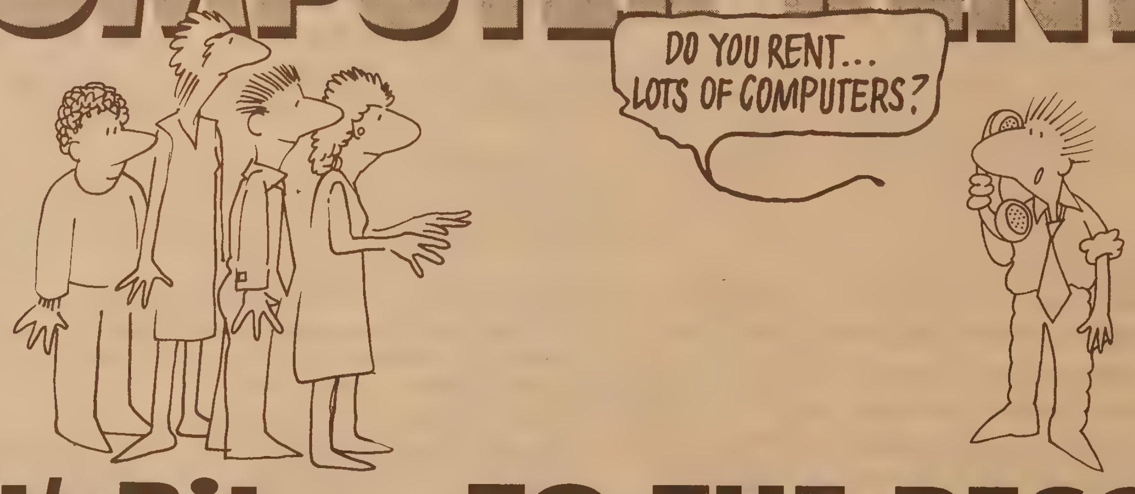
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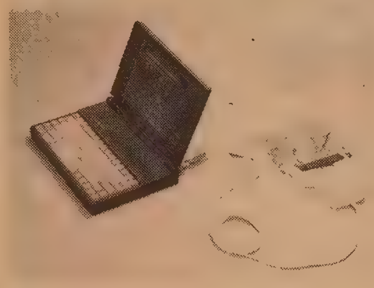

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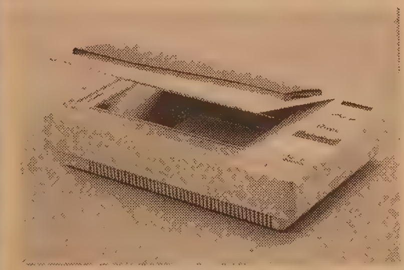

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TELECOMMUTING • BY ROBERT MOSKOWITZ

Big Players Line Up Behind National Information Infrastructure

New Opportunities (And Hazards) In The Future Of Telecommunications

So far, the closest thing we have to the much-ballyhooed information superhighway is the Internet, which has grown in recent years from a domestic research network to the world's largest network, and a public and private amalgam of information and services. But the very structure and mission of the Internet, as well as of other information infrastructure elements, is the topic of debate among lawmakers and policy analysts in Washington, DC. Currently there are more than thirty different information-oriented bills and proposals being discussed in and around the Congress.

As you might expect, long-distance and local telephone companies, along with cable TV companies, are spending lavishly in that town. Their goal: to make sure none of the new laws or regulations put forth in the near future will undercut their existing businesses or prevent them from making money from the new opportunities they expect to discover or develop in the near future.

For the major players, one of the most critical elements is to get Congress to deregulate the information marketplace. Of the many pending bills and proposals, here are just two examples:

One important bill—the National Communications Competition and Information Infrastructure Act proposes to open local telephone markets to cable providers and in return would allow the regional Bell operating companies to offer cable-like services through their own network!

Another prominent piece of proposed legislation—the Emerging Telecommunications Technologies Act—would free the telephone companies to provide long-distance services and provide their own content (news digests, stock information, etc.) for network subscribers.

At this point in the debate, service and network vendors are strong advocates of reduced government "interference" in the free flow of information and the various markets for information services. These are many of the same organizations that insisted on tight regulation when the big issue appeared to be that new players might enter their existing service areas and take away some of their monopoly revenues. Now that demand is judged to be rapidly expanding, they have suddenly reversed their position and seen the light: only the free market should govern the information industry.

One of the most heated debates centers around the Internet itself. Long a model of information democracy (some might say anarchy) in which virtually any small player could become an information disseminator, provide information services, or make use of other people's information services at relatively low cost, today there is talk of taking the Internet private.

There are also a great many special interests who, in jockeying for individual business advantages, are attempting to make regulatory changes that may not be very good for the rest of us. For example, lobbyists for fiber optic cable manufacturers have already defeated certain "Open Platform" proposals that would have enhanced cheap universal access to the national information infrastructure. The reason: These methods would have worked on existing coaxial cables, lessening some of the incentives to lay new fiber.

These players have millions to spend on campaign contributions, perks, parties, and other favors for lawmakers. There is practically no one with anything like these well-financed war-chests to catch and hold a legislator's attention who is arguing for cheap rates, open architectures, public access, or making available, online and at cost, all government information.

> **Congress may well turn out to be more intent on protecting and encouraging specific information markets, rather than protecting and encouraging the public interest.**

Vice President (formerly Senator) Gore has done a great job bringing the issues of information processing and dissemination to the attention of more and more people in the nation and the world. During the 1992 campaign he spoke of creating an information infrastructure that would be widely accessible and oriented toward community-building activities, as well as toward business. But as the government's most vigorous proposals (and shyness about putting forward other proposals) for the future of information processing in this country become more apparent, experts are noticing more emphasis on the business potential of movie rentals and sitcom reruns than on the social and general economic potential of telecommuting, or of telecommunications for education and economic development.

In my opinion, Congress may well turn out to be more intent on protecting and encouraging specific information markets, rather than protecting and encouraging the public interest. If the wrong laws are passed, we may lose a once-in-a-lifetime opportunity to structure the future of information dissemination and usage, and of information-based power in this society for generations to come. During the 1930s and 1940s, we lost the battle to have radio developed as a noncommercial medium. As a result, the advertisers now control the major voice in America: television. It would be a shame if we now lose an equally important battle to have computerized information networks developed for the public's benefit only to watch it developed solely for private gain.

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reporting on the emerging outlines of the national information infrastructure is the Information Infrastructure Clearinghouse project. Although the staff is small, they make an effort to help all comers. For more information, contact: Tom Freebairn, Information Infrastructure Clearinghouse Project, c/o Benton Foundation, 1634 Eye St., N.W., 12th Fl., Washington, DC 20006. Telephone: (202)638-5770. Fax: (202)638-5771.

You can also access the National Telecommunications and Information Administration through various means: To reach the NTIA BBS via Internet: ntiabbs.ntia.doc.gov; or iitf.doc.gov . To reach the NTIA BBS via dial up: (202)482-1199; set your modem to 2400 or 9600 baud, with 8 data bits, 1 stop bit, and no parity.

I have more government access addresses, mostly on the Internet, mostly gleaned from activists who are exploring ways to keep track of what our government is doing. If you would like me to email you my most current (but far from complete) list, email me with your email address at rmoskowitz@aol.com .

Los Angeles County Telecommuting Works Well, Wins Recognition

Choosing among more than sixteen hundred applicants, the Ford Foundation and the John F. Kennedy School of Government have granted the Los Angeles County Telecommuting Program a $100,000 award as one of the nation's top ten public programs in 1993 to address such important issues as increasing productivity, balancing work and family responsibilities, improving air quality, reducing traffic congestion, and maximizing use of tax dollars.

This should not be surprising to anyone familiar with the Los Angeles County program. Since it authorized its first telecommuter in 1989, the county has steadily supported a shift in this direction, until it now employs more than three thousand active telecommuters. These mobile workers average about 1.8 days of telecommuting per week, with some telecommuting only one day each week while others telecommute four out of five work days.

The county's telecommuting efforts—part of an overall effort to improve quality of life for employees and residents in the county—are aimed at six major objectives. These include:

1. Provide county employees with a "family-friendly" workplace.
2. Improve employee productivity.
3. Enhance the opportunities for flexible resource management, including better use of office space and equipment, and better recruitment and retention of top-quality employees.
4. Reduce employees' use of sick leave.
5. Improve employees' morale.
6. Improve air quality and reduce traffic congestion by reducing the numbers of cars that county employees drive to work each day, and the distance each one covers.

Part of the reason the county telecommuting program runs as smoothly and quietly as it does is that its telecommuting program managers and coordinators help

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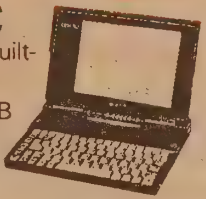

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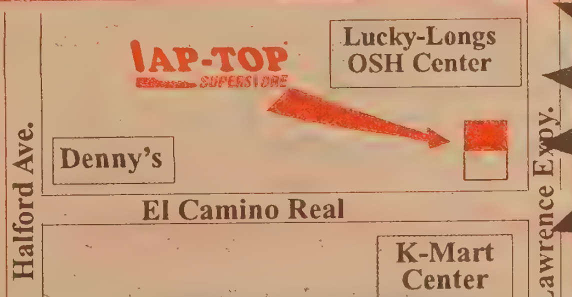

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select candidates very carefully. They also provide every new telecommuter with training and written guides to telecommuting, and are available for ongoing support after they begin. Another factor is that the county's telecommuters are volunteers, and are thus highly motivated to succeed.

The county defines telecommuting very broadly as "working at a location other than the conventional office." This allows telecommuters to set up a workplace and arrange a schedule most conveniently without running into unnecessary bureaucratic strictures. Under the county's telecommuting guidelines, there are four different program options:

Home-Based Telecommuting. By far the most popular, telecommuters who select this option are given the time to fix up a workstation at home. From there, they communicate with their offices and clients via ordinary "dial-up" telephone lines. Some use enhanced technology, such as computers and modems, voice mail, fax machines, and beepers to remain in closer contact. In some cases, the county identifies nearby offices or commercial establishments where telecommuters can get support services they may need from time to time, such as secretarial work and copying.

The Facilities Exchange Project. The first of its kind, this program seeks to identify vacant or underutilized government offices near the homes of government employees who would like to telecommute. County employees can travel to nearby city, county, or state offices located within Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties, and telecommute from there instead of from home. The program also permits employees of other participating governments to make use of available county facilities.

Antelope Valley Business Centers. Even before the January earthquake, Los Angeles County had room for three hundred telecommuters per week at well-equipped workstations in the northern part of the county. Since the earthquake, more workstations have been added and more telecommuters have been assigned to these centers. Working at these locations saves most telecommuters a 20- or 30-mile trip each way to their regular county office.

Emergency Telecommuting. In an area known for recurring earthquakes, wildfires, floods, and mudslides that can interfere with normal business operations and disrupt freeway travel for long periods of time, county administrators consider telecommuting a valuable tool for maintaining services during and after emergencies. The county has a plan to place key employees in temporary office space or even at home, where with mini-training sessions and guidance about using local services they can continue to do their jobs despite specific highway, power, or telephone disruptions due to an emergency.

> **It would be a shame if we now lose an equally important battle to have computerized information networks developed for the public's benefit only to watch it developed solely for private gain.**

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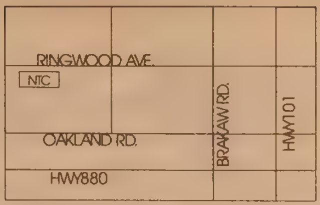

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Los Angeles Telecommuting Centers Filling Up

According to the *Los Angeles Times*, the Antelope Valley Telebusiness Center is already fully utilized. The forty telecommuters who work at the recently opened facility more than thirty miles north of Los Angeles are reportedly driving 25,000 fewer miles each week and reducing air pollution by 700 tons of unwanted material.

The center, about fifteen minutes from most of its occupants' residences, is far closer than the one hour or longer travel time required to reach their regular offices in the San Fernando Valley. Users of the business centers are charged $20 per day for use of the facilities, but those who sign a six-month lease get three months free rent.

A second telecommuting center in the Antelope Valley, which has been open for more than a year, remains at only 50% occupancy.

An Emerging Virtual Community

In the last several months, I have become increasingly aware of communities of people who are banding together by network and physical proximity to create old-style "village" environments. Now I've read in the *Los Angeles Times* of an electronic village taking shape within Humboldt, Del Norte, Mendocino, Trinity, and Lake counties of northern California.

Launched in 1993 by Larry Goldberg, a transplanted New Yorker who provides computer consulting services from his home in Trinidad (California) and his office in Eureka, the "Northcoast Electronic Town" (NET) is intended to fulfill a wide range of social and economic needs for a community of people too widely separated to see each other in person every day.

Goldberg charges $10 a month to use NET, and presently has enough subscribers to support some very interesting services. Subscribers can:

- Check the schedule of plays offered at the local repertory theater;
- Join a "coffeehouse" discussion;
- Study the availability of grants and of like-minded professionals to help support economic development in the NET region;
- Read local news, or even Shakespeare, online; or
- Order groceries from a local food store.

Of course, the NET also provides more conventional electronic services, such as access to national and international news, email, and a certain selection of user-group discussions and databases through limited access to the Internet.

So far, about two hundred local residents reportedly have signed up for NET access, but Goldberg plans to have one thousand or more subscribers fairly soon. For more information, contact Larry Goldberg directly at (707)677-0822.

I'd love to hear about other community networks, whether organized like Northcoast Electronic Town or organized some other way. As I learn about them, I'll pass along word of these and other developments in this space. ■

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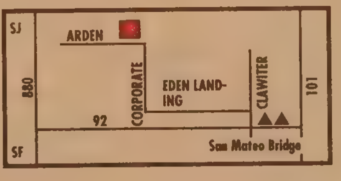

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Tower Case mini size, 5 drive, 230wps	47

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Fax Modem (For DOS & WIN) (9600 Fax, 2400 Modem)	40
Fax Modem (14,400 Fax, 14,400 Modem)(For DOS & WIN)	95
Serial Mouse (Color)	10
Power Center/Power Strip	14/3
Colorado Tape Backup 250MB	156
16-Bit Ethernet Card 10 Base-T	40
SIMM/CPU/SRAM/DRAM	LOWEST
Math-Co 387DX-33/40	47/48
Math-Co 387SX-25/33	45/46

HI-TECH USA

(408) 262-8688 Milpitas
(415) 508-8688 San Carlos

SUPER SALE	MOTHER BOARD	MOTHER BOARD WITH CPU	* BASIC SYSTEM	BASIC SYS +120MB HDD +MGP CARD & 14" MONO MONITOR {200MB HDD ADD $40}	BASIC SYS + 120MB HDD + VGA CARD & VGA MONO MONITOR {200MB HDD ADD $40}	BASIC SYS +120MB HDD + SVGA CARD & SVGA COLOR MONITOR {200MB HDD ADD $40}	BASIC SYS +250MB HDD + SVGA CARD & SVGA COLOR MONITOR {420MB HDD ADD $50}	BASIC SYS W/4MB RAM +120MB HDD +SVGA CARD & MONITOR {200MB HDD ADD $40}	BASIC SYS W/4MB RAM +250MB HDD +SVGA CARD & MONITOR {340MB HDD ADD $30}	BASIC SYS W/4MB RAM +420MB HDD +SVGA CARD & MONITOR {540MB HDD ADD $80}
PENTIUM -90/256C VLB PCI USA	$468	$1,268	$Call	$Call	$Call	$Call	$Call	$1,978	$2,048	$2,098
PENTIUM -66/256C VLB PCI USA	368	1,048	Call	Call	Call	Call	Call	1,698	1,768	1,818
PENTIUM -90/256C VLB PCI	398	1,198	Call	Call	Call	Call	Call	1,848	1,918	1,968
PENTIUM -90/256C VLB	348	1,158	Call	Call	Call	Call	Call	1,808	1,878	1,928
PENTIUM -66/256C VLB	258	948	Call	Call	Call	Call	Call	1,598	1,668	1,718
PENTIUM -60/256C VLB	258	878	Call	Call	Call	Call	Call	1,528	1,598	1,648
IBM 486BL-75/256C VLB	N/A	348	508	748	788	878	948	998	1,068	1,118
IBM 486SLC2-66/64C VLB	N/A	218	364	618	658	748	818	868	938	988
486DX4-100/128C VLB	118	698	858	1,098	1,138	1,228	1,298	1,348	1,418	1,468
486DX2-66C VLB	78	308	458	708	748	838	908	958	1,028	1,078
486DX2-50C VLB	78	248	398	648	688	778	848	898	968	1,018
486DX-40C VLB	78	238	388	638	678	768	838	888	958	1,008
486DX-33C VLB	78	218	374	618	658	748	818	868	938	988
486SX-33 VLB	78	158	308	558	598	688	758	808	878	928
486DLC-40/128C VLB	98	158	318	558	598	688	758	808	878	928
486DLC-33/128C VLB	98	148	308	548	588	678	748	798	868	918
486DX2-66/128C NICE EISA VLB	218	538	688	938	978	1,068	1,138	1,188	1,258	1,308
486DX2-66/128C EISA	148	488	638	888	928	1,018	1,088	1,138	1,208	1,258
486DX-33/128C NICE EISA VLB	218	428	578	828	868	958	1,028	1,078	1,148	1,198
IBM 486SLC2-50C ISA	N/A	158	318	558	598	688	758	808	878	928
486DX2-66C ISA	68	298	448	698	738	828	898	948	1,018	1,068
486DX2-50C ISA	68	238	388	638	678	768	838	888	958	1,008
486DX-40C ISA	68	228	378	628	668	758	828	878	948	998
486DX-33C ISA	68	208	364	608	648	738	808	858	928	978
486SX-33C ISA	68	144	294	544	584	674	744	794	864	914
486SX-25C ISA	68	124	268	524	564	654	724	774	844	894
386DX-40/64C	N/A	82	228	482	522	612	682	732	802	852
386SX-40	N/A	56	214	456	496	586	656	706	776	826

*** BASIC SYSTEM CONFIGURATION:** Motherboard & CPU, 1MB memory installed, 1:1 2HD/2FD controller with 2S/1P/1G, 1.44MB Floppy Drive, Internal Clock/Calendar, Enhance Case with Power Supply, and 101-Key Enhanced Keyboard.

BEST MULTIMEDIA SYSTEMS

- 4MB High Speed RAM
- 1.44MB 3.5" Floppy Drive
- ISA/VLB IDE controller w/2S/1P/1G
- 200MB Fast IDE Hard Drive
- ISA / VLB SVGA Card w/1MB
- 14" SVGA .28 Color Monitor
- Medium Tower Case w/Power Supply
- Focus 2001 Keyboard
- Double Speed CD-ROM
- Deluxe Speakers
- Sound Blaster Pro Deluxe
- Free CD Deluxe Pak (4 Titles)

386DX-40/128K ISA	**$1,058**
486DLC-40/128K VLB	**$1,138**
486SLC2-66/128K VLB	**$1,198**
486SX-25/128K VLB	**$1,128**
486DX-33/128K VLB	**$1,198**
486DX2-50/128K VLB	**$1,238**
486DX2-66/128K VLB	**$1,298**
Pentium-60/256K VLB	**$1,848**
Pentium-66/256K VLB	**$1,908**
Pentium-90/256K VLB	**$2,198**

UPGRADES

• 250MB Hard Drive	Add $20
• 340MB Hard Drive	Add $50
• 420MB Hard Drive	Add $70
• 540MB Hard Drive	Add $140
• 14" Non-Interlaced Monitor	Add $20
• 15" Non-Interlaced Monitor	Add $90
• 17" Non-Interlaced Monitor	Add $350

Best Prices in Town!

DELUXE SYSTEMS

386SX-40	$718
386DX-40/64K	738
486SX-25/128K ISA	798
486SX-33/128K ISA	828
IBM 486SLC2-50 ISA	818
486DLC-33/128K VLB	808
486DLC-40/128K VLB	818
486SX-25/128K VLB	808
486SX-33/128K VLB	838
486DX-33/128K ISA / VLB	868 / 878
486DX-40/128K ISA / VLB	888 / 898
486DX2-50/128K ISA / VLB	908 / 918
486DX2-66/128K ISA / VLB	968 / 978
486DX4-100/128K VLB	1,348
IBM 486SLC2-66/64K VLB	878
IBM 486 BL-75/256K VLB	1,008
486 DX-33/128K NICE EISA VLB	1,088
486DX2-66/128K NICE EISA VLB	1,198
ORCHID 486DX2-66/256K VLB	1,188
486DX2-66/256K PCI	1,248
Pentium P5-60/256K VLB	1,518
Pentium P5-66/256K VLB	1,588
Pentium P5-90/256K VLB	1,838
Pentium P5-90/256K VLB - PCI	1,878
Pentium P5-60/256K VLB - PCI USA	1,648
Pentium P5-66/256K VLB - PCI USA	1,718
Pentium P5-90/256K VLB - PCI USA	1,968

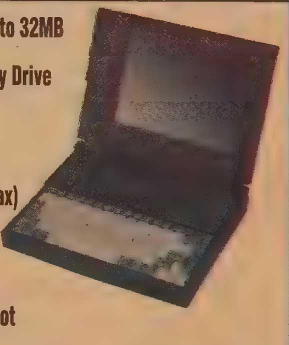
SYSTEM CONFIGURATION

- Motherboard w/CPU
- 4MB RAM 70NS
- 120MB Fast Hard Drive
- 1.44MB 3.5" Floppy Drive
- IDE 2HD/2FD Controller w/2S/1P/1G
- 512KB SVGA Card
- 14" SVGA .28 Color Monitor
- 101-Key Enhanced Keyboard
- Enhanced Case w/Power Supply
- Microsoft Compatible Mouse w/Pad

UPGRADES

• 200MB Hard Drive	Add $40
• 250MB Hard Drive	Add $60
• 340MB Hard Drive	Add $90
• 420MB Hard Drive	Add $110
• 540MB Hard Drive	Add $180
• 14" Non-Interlaced Monitor	Add $20
• 15" Non-Interlaced Monitor	Add $90
• VLB IDE Controller	Add $10
• ATI Ultra Pro PCI w/2MB VRAM	Add $210
• 16BIT SVGA Card w/1MB	Add $20
• Window Accelerator w/1MB	Add $20
• Cirrus Logic/ Trident VLB w/1MB	Add $30
• Orchid Fahrenheit 1280	Add $90
• Diamond S.S. Pro VLB w/1MB	Add $60
• 250MB Tape Back-up	Add $130
• 16BIT Ethernet Card	Add $32
• Deluxe Speakers	Add $8
• Single Speed CD-ROM w/Card	Add $80
• Double Speed CD-ROM w/Card	Add $140
• Sound Blaster Pro Deluxe	Add $80
• CD Deluxe Pak (4 Titles)	Add $20

VESA LOCAL BUS NOTEBOOKS



- **4MB RAM Upgradable to 32MB**
- **120MB Hard Drive**
- **Removable 1.44 Floppy Drive**
- **Built-In Trackball**
- **Carrying Case**
- **Built-in Sound Card and Speaker**
- **NIMH Battery (4 Hr. Max)**
- **Double Life Second Battery 8 Hr. Max (Option)**
- **One Type III or Two Type II PCMCIA Slot**

Super Sales	VGA Mono	Dual Scan Color	Active Matrix Color
486SX-25	$1,418	$1,828	$2,888
486SX-33	1,438	1,948	2,908
486DX-33	1,588	2,098	3,058
486DX2-50	1,608	2,118	3,078
486DX2-66	1,708	2,218	3,178

UPGRADES

• Microsoft DOS 6.21	Add $50
• RAM 8MB / 16MB	Add 200 / 600
• Hard Drive 250MB/340MB	Add 120/220
• NIMH Battery Pak	Add 120
• PCMCIA Fax Modem (96/24)	Add 130
• PCMCIA Fax Modem (144/144)	Add 200

SUPER GREEN PENTIUM VLB-PCI

- **First and Only Green Pentium System**
- INTEL Pentium CPU
- **Made in USA Motherboard**
- **Power Saving Green PC**
- **6 Buffer Enhanced Bus Master VLB-PCI**
- **AMI Flash BIOS**
- **64-Bit Data Bus Memory System**
- **AMP Socket 4 ZIF Socket**
- 8MB High Speed RAM
- TEAC 1.44MB 3.5" Floppy Drive
- VLB IDE controller w/2S/1P/1G
- ATI Ultra Pro VLB w/2MB VRAM
- 200MB Fast IDE Hard Drive
- Focus 2001 Keyboard
- 15" Non-Interlaced SVGA Monitor
- Medium Tower Case w/Power Supply

Pentium P5-60/256K	**$2,128**
Pentium P5-66/256K	**$2,198**
Pentium P5-90/256K	**$2,438**

UPGRADES

• 340MB Hard Drive	Add $50
• 420MB Hard Drive	Add $70
• 540MB Hard Drive	Add $140
• ATI Ultra Pro PCI w/2MB VRAM	Add $10
• Viewsonic 15EX Monitor	Add $100
• Viewsonic 17G Monitor (Green)	Add $480

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Mini Tower Case w/200W Power Supply	$39
Desktop AT Case w/200W Power Supply	44
Medium Tower Case w/230W Power Supply	66
Full Tower Case w/250W Power Supply	76
UPS 400VA / 600VA / 900VA	164 / 250 / 360

CD-ROM / MULTIMEDIA

Creative Labs	
Sound Blaster Deluxe	$56
Sound Blaster Pro Deluxe	74
Sound Blaster Pro 16 Basic	93
Sound Blaster Pro 16 MCD	105
Discovery CD 16 Upgrade Kit	296
Edutainment CD 16 Upgrade Kit	386
Diamond Sonic (AT / SCSI)	92 / 204
Mediavision Jazz 16 (AT/SCSI)	94 / 104
Mediavision Pro Audio Spectrum 16	94
Mediavision Pro Audio Studio 16	128
Orchid Gamewave Sound Card (AT)	116
Orchid Soundwave Sound Card (AT)	164
Chinon CDS535 (Int.) SCSI	288
Mitsumi CD-ROM (350MS) w/Card	80
Mitsumi CD-ROM Dual Speed	126 (w/Card 136)
NEC 3Xi (510) Triple Speed SCSI Internal	332
Orchid CDS3110 (Double Speed) w/Card	158
Panasonic CD-562 Dual Speed	126 (w/Card 136)
Phillips CD-ROM w/Card	78
SONY CD-ROM Dual Speed	126 (w/Card 136)
Toshiba XM-3401B (SCSI) Int / Ext	274 / 358
Trantor SCSI Host w/Driver	48
Audio Pak (Sound Card, Speaker, Joystick, Earphone)	50
Deluxe Speakers	6

CD SOFTWARE TITLES

American Business Phone Book-1992	14
Animals v1.0 DOS	12
Arthur's Teacher Trouble	16
Atlas Pak v3.1 World/US	15
Barney Bear Go to School	15
Barney Bear Go to Space	15
Battle Chess DOS	15
Beauty & Beast MPC	12
Bring the World to Your Senses	11
Campton's Interactive Encyclopedia MPC	24
Carmen San Diego DOS	18
CD Deluxe Pak (Chess Master 3000, Mavis Teaches Typing, US Altas, World Atlas)	20
CD Game Pack II DOS	15
Chess Master 4000 MPC	15
Composer Quest MPC	18
Dinosaur / Space Adventure	18
F15 by Microprose	12
Family Choice/Britannica DOS	15
Family Doctor DOS/MAC	16
Family Education Collections DOS	16
Great Cities-Vol 1 / Vol 2 DOS	16
Gunship 2000	20
Guy Spy	24
Hard Days Night (Beatles)	18
Jets & Props MPC	16
Jones in Fast Lane MPC	14
Jurassic Park (Screen Saver)	15
King's Quest V DOS	11
King's Quest VI DOS	21
Kodak Photo CD Access	11
Language of the World	15
Loom From Lucas Film DOS	12
Macmillan Dictionary For Children	15
Magic Desk	14
Mantis Experimental Fighter	14
Mario is Missing/World Atlas 3.2	15
Mavis Teaches Typing MPC	14
Mayo Clinic Family Health	15
Micropose Collection 4 Games	16
Microsoft Bookshelf MPC	28
Microsoft Bookshelf, Mixed Up Mother Goose King's Quest V, Thunder-Media Sound Library	48
Microsoft Works MPC	28
MIDI Music Shop	15
Mixed-up Mother Goose MPC	12
Monkey Island DOS	12
MPC Audubon's Mammals	14
National Geographic Mammals DOS	16
National Park	16
New Century Campton	18
PC SIG 12th Edition	18
Peter & Wolf MPC	12
Playing with Language (English)	16
Playing with Language (French)	16
Playing with Language (German)	16
Playing with Language (Japanese)	16
Playing with Language (Spanish)	16
Secret Weapons/Luftwf DOS	12
Sleeping Beauty	13
So Much Shareware IV DOS	17
Sound Library MPC	10
Space Quest IV By Sierra DOS	14
Space Shuttle	17
Sport's Best (3 in 1) DOS	17
Stellar 7 DOS	14
Survey of Western Art MPC	20
The Lord of the Ring	25
Time Table of History DOS	14
Too Many Type Fonts	12
Tool Works Reference Library	16
Total Baseball DOS/MAC	12
US Atlas v3.1 MPC	13
US History DOS/MAC	16
USA Wars: Civil War DOS/MAC	22
USA Wars: Vietnam DOS/MAC	22
USA Wars: WW II DOS/MAC	22
USA Wars: Korea	22
Willy Bearnish The Adventure	14
Windoware	12
Wing Command & Ult VI DOS	14
World Atlas v3.2 MPC	12

CONTROLLERS

IDE 2FD/2HD with 2S/1P/1G	$11
IDE with I/O for VESA Local Bus	18
Enhanced I/O (2S/1P) w/16550 UART Chip	26
IDE I/O (2S/1P) w/16550 UART Chip	34
VLB IDE I/O (2S/1P) w/16550 UART Chip	44
Adaptec	
1542CF (SCSI)	158
1542CFK w/Kit (SCSI)	228
2742A EISA (SCSI)	220
2742TK EISA (SCSI)	338
2742T EISA (Twin SCSI)	268
2842 VLB SCSI	234
2940 PCI SCSI	208
Asus EISA (SCSI)	246
Asus PCI (SCSI)	76
BusLogic 445S VLB (SCSI)	218
BusLogic 742K EISA (SCSI)	208
DTC 2290 EISA IDE	114
DTC 2280 ISA IDE	14
DTC 2278 VLB IDE	26
Promise DC-200 IDE Cache Controller	86
Promise DC-420 VLB w/512K Cache	96
Promise DC-4030 VLB IDE Cache Controller	100

HARD DRIVES

120MB 19MS IDE	138
212MB 15MS IDE	170
250MB 15MS IDE	190
340MB 12MS IDE	218
420MB 12MS IDE	238
540MB 12MS IDE	308
340MB 13MS SCSI	258
540MB 12MS SCSI	368
1.0GB 13MS SCSI	658
2.0GB 13MS SCSI	1,068

KEYBOARDS

101 Enhanced Keyboard	$13
Focus	
FK2001 101-Key Click	31
FK8000 w/Calculator	33
FK9000 Programmable	49
Keytronics 101-Key Enhanced	24
Mitsumi 101-Key Enhanced	13
Maxiswitch 101-Key Enhanced	21
Maxipro II Programmable	50
Northgate	
OMNI 101 NI / 102	66 / 66
OMNI Ultra T or F	84

MATH COPROCESSORS

387DX-40 (Tube/Box)	$28 / 44
387DX-33	40
387SX-33	40
387SX-25	38

MODEMS & FAXES

Fax Modem (9648 Fax/2400 Modem)	$28
Fax Modem (9600 Fax/2400 Modem)	37
Fax Modem (14,400 Fax/14,400Modem) Int.	68
Fax Modem (14,400 Fax/14,400Modem) Ext.	106
Fax Modem 28.8 (28.8 Data, 14.4 Fax) Int	188
Pocket Fax Modem (9648/24)	76
Pocket Fax Modem (14,400/14,400)	176
Hayes 14400 Fax Modem Int/Ext	148 / 168
Intel 14.4 Fax Modem Int/Ext	154 / 178
US Robotics	
Sportster 14400 Modem Int	102
Sportster 14400 Modem Ext	122
Sportster 14400 Fax Modem Int	104
Sportster 14400 Fax Modem Ext	124

MONITORS

14" Mono	$70
14" VGA Mono	88
14" Super VGA 1024•768 .39	178
14" Super VGA 1024•768 .28 Int	198
14" Super VGA 1024•768 .28 NI	214
15" Super VGA 1280•768 .28	288
17" Super VGA 1280•768 .28	568
CTX	
14" Super VGA 1024•768 .28 Int	224
14" Super VGA 1024•768 .28 NI	238
CMS1561LR 15" 1024•768 .28	314
CPS1760LR 17" 1280•1024 MPR II	618
Hitachi	
CM1584MV 15" 1280•1024 .28	430
CM2095 20" 1280•1024 .31	1,228
MAG	
15F 15" 1280•1024 .28	368
17F 17" 1280•1024 .26	668
NANAO	
F550I 17" 1280•1024 .28	834
F550IW 17" 1280•1024 .28	928
T560I 17" 1280•1024 .25	1,398
F560IW 17" 1280•1024 .26 TRIN	1,168
T660I 20" 1280•1024 .31	2,098
F760IW 21" 1280•1024 .31	1,888
NEC	
3V 15" 1024•768 .28	454
4FGe 15" 1024•768 .28	604
5FGe 17" 1024•768 .28	948
5FGp 17" 1280•1024 .28	1,078
SONY	
1604S 17" 1024•768 .25	788
1730 17" 1024•768 .25	898
17SE 17" 1600•1280 .25	1,048
2036 20" 1280•1024 .30	1,778
2038 20" 1600•1280 .30	1,878
VIEWSONIC	
4E 14' 1024•768 .28 Green	250
6E 14" 1024•768 .28 Green	268
14E 14" 1024•768 .28	298
15E 15" 1024•768 .28	356
15EX 15" 1024•768 .28 Green	374
15 15" 1280•1024 .28 Green	418
17 17" 1600•1280 .28	916
17E 17" 1280•1024 .28 Green	708
17G 17" 1280•1024 .28 Green	768
20 20" 1600•1280 .28	1,460
21 21" 1600•1280 .26	1,698

MOUSE

3-Button Microsoft Compatible	$7
Logitech	
Cordless	81
Mouseman Serial (OEM) / Bus	32 / 62
Trackman	74
Scanman 256	198
Microsoft Mouse Serial (w/System)	24
Microsoft Mouse Bus (w/System)	54

NETWORK

8 BIT Ethernet Cards (NE1000 Compatible)	$30
16 BIT Ethernet Cards (10 Base-T/Coax)	32
16 BIT Ethernet Cards (3-in-1 Combo)	34
16 BIT Ethernet Cards (Pocket for Notebook)	98
16 BIT Busmaster (NE2100 Compatible)	74
3COM	
3C509 ELINK III Coax / 5 pack	118 / 488
3C509 ELINK III TP / 5 pack	118 / 468
3C509 ELINK III Combo / 5 pack	138 / 548
ARCnet	
4-Port Passive Hub	12
8-Port Active Hub	98
Bus Topology 8 BIT ISA Card	40
Bus Topology 16 BIT ISA Card	45
Star Topology 8 BIT ISA Card	40
Star Topology 16 BIT ISA Card	45
BootROM	
8 BIT or 16 BIT Auto Boot PROM	12
Hubs and Repeaters	
4-Port 10 Base T HUB	108
12-Port 10 Base T HUB	268
16-Port 10 Base T HUB	338
2 BNC Ethernet Repeater	178

PRINTERS

Citizen	
GSX-190 (9-Pin) / GSX-220 (24-Pin)	$158 / 168
GSX-230 / GSX-240 (24-Pin) Quiet	238 / 288
GSX-145 (24-Pin) Wide	358
Color Option for Citizen Printers	48/68
Panasonic	
KX-P1150 (9-Pin)	138
KX-P2023 (24-Pin) Quiet	198
KX-P2123 (24-Pin) Color Capacity	236
KX-P2124 (24-Pin) Color Capacity	318
KX-P2624 (24-Pin) Quiet Wide	398
Color Upgrade Kit KX-PCK11	54

TAPE BACKUP

Conner 250MB Int	$128 (w/tape ...$138)
Colorado	
DJ-10 Tape Back-up 120MB	94
DJ-20 Tape Back-up 250MB	154
KE-9 Ext. Kit for DJ-10/Dj-20	62
Tape QIC-80 3M DC2120	14
JT-20 Trakker 250MB Ext	314
PT-10 Power Tape 1.0GB Int	644
PT-25 Power Tape 2.4GB Int	924
PT-50 Power Tape 4GB Int	1,144

VGA CARDS

VGA 256K	$25
SVGA 512K 16 BIT	35
SVGA 1MB 1024•768 16 BIT	54
Window Accelerators w/1MB	54
Cirrus Logic VLB w/1MB	66
Trident VLB w/1MB	66
ATI	
Ultra 1MB w/Mouse	150
Wonder PCI / VLB / ISA 1MB DRAM	128
Ultra Plus PCI / VLB / ISA 2MB DRAM	188
Ultra Pro ISA 1MB/2MB DRAM	128/178
Ultra Pro VLB 1MB/2MB DRAM	128/178
Ultra Pro VLB / PCI 2MB (VRAM)	238
Ultra Pro EISA 2MB (VRAM)	298
Winturbo 64 VLB / PCI / ISA 2MB (VRAM)	350
Diamond	
Speed Star Pro 1MB (ISA)	96
Speed Star Pro 1MB (VLB)	96
Stealth 24 ISA / VLB 1MB	126
Stealth 32 PCI 1MB / 2MB	154 / 208
Stealth Pro ISA / VLB 1MB (VRAM)	208
Stealth Pro VLB 2MB (VRAM)	288
Viper 2MB (VLB)	304
Viper 2MB (PCI)	304
Genoa 8500 VLB 1MB	88
Orchid	
Celsius 1MB VLB	120
Celsius 2MB VLB	178
Fahrenheit 1MB (S3-801) ISA	120
Fahrenheit 1MB (S3-805) VLB	132
Fahrenheit 1MB (S3-801) VA ISA	130
Kelvin VLB (64-Bit) 1MB / 2MB	138 / 184
Kelvin PCI (64-Bit) 1MB / 2MB	138 / 184

TERMS AND CONDITIONS

1. One year parts and labor warranty on systems.
2. Knowledgeable technical support engineers in service.
3. Prices and availability subject to change w/o notice.
4. Shipping, insurance and COD charges are extra and non-refundable. Prices reflect cash discounts.
5. Return shipping must be insured, prepaid and bearing an RMA# on the shipping label.
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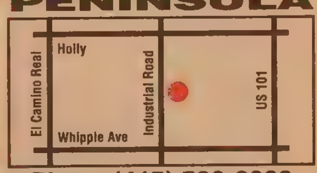
HI-TECH USA

PENINSULA



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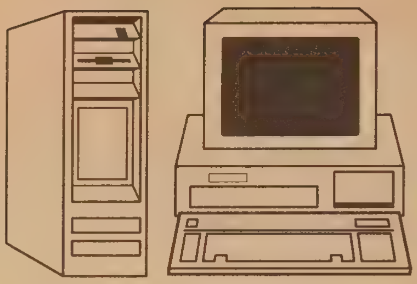

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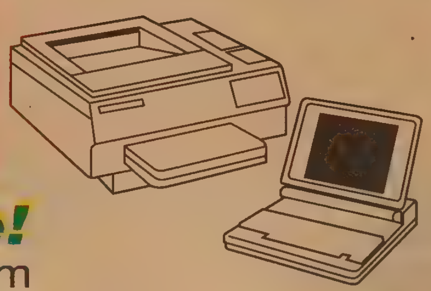

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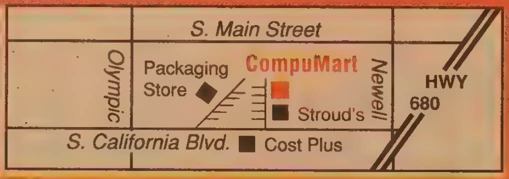

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LANS • BY PETER JOHN HARRISON

Calling Technical Support

Knowing If You Will Receive A Rapid Response To A Technical Support Call Is Important To Know Before Making Your Purchase

Go into a men's clothing store, and announce your intention to spend a couple hundred dollars on a sport jacket. A sales person will be with you almost immediately, asking questions about what you're looking for, ready to give you advice on color and fit, even help you in and out of several different jackets so you can see how they look. Within minutes you're on your way, a new jacket on your back, but due to a careless brush with a car door a week later, you pop a button off.

No problem. You take it back to the store, and they'll have the button sewn back on. No charge.

Go to Novell, and announce your intention to spend a couple thousand dollars upgrading a client's Network Operating System to the latest version. After being shuffled through their phone mail system, then asked a series of questions, faxing off a copy of your client's license disks, and giving out your credit card number, the software upgrade arrives in the mail a couple days later, but you have a problem during the installation process, and you need help.

Big problem. First, technical support at Novell isn't free, it's $200 a call ($100 if you're a CNE). Second, even when you're willing to pay for tech support, you'll have to wait for hours, even days, to get the help you need.

Novell, take notice. This is unacceptable.

I can understand why Novell charges for technical support. Well-trained LAN support people don't come cheap, and Novell has to defray the cost of keeping them "on call." Novell also tries to give you your money's worth, by making sure you're satisfied with their solution before they "close the call." You can get quite a bit of help for your money.

On the other hand, it's highway robbery to expect an organization to shell out thousands of dollars on networking software, then hundreds more for a single tech support call, only to have Novell tell you that they're too busy to help you out just now, and they'll call you back. When network services are down. And there are users outside your door talking trees, ropes, and LAN administrators. And other network vendors can do better.

To check out the other guys, I called Microsoft's free support number with a Windows for Workgroups network question. It took me six minutes to get through to Microsoft's Cliff Summers, a Windows for Workgroups Support engineer. Then I called Artisoft's $2.50/minute "Express Support" 900 number (Artisoft also has a "free" support number, but there's usually a wait), and was talking with Artisoft's Technical Support Specialist Daniel Aurthur in three minutes (billing started when he picked up the phone). Meanwhile, it's now Monday and I'm still waiting for Novell to call me back about that call I placed last Thursday—for $200.

Timely technical support is critical to the smooth operation of a network environment. Rapid response to a technical support call is so important that I frequently try calling a company's tech support line before I buy their product, and oftentimes I'll select another vendor if I don't get good service. The price of down time is just too high when the alternative is letting the entire company sit idle while you wait for Technical Support to call back.

Oh, and that problem I called about? I managed to solve it without Novell's help, something I'm hoping I won't have to get used to doing.

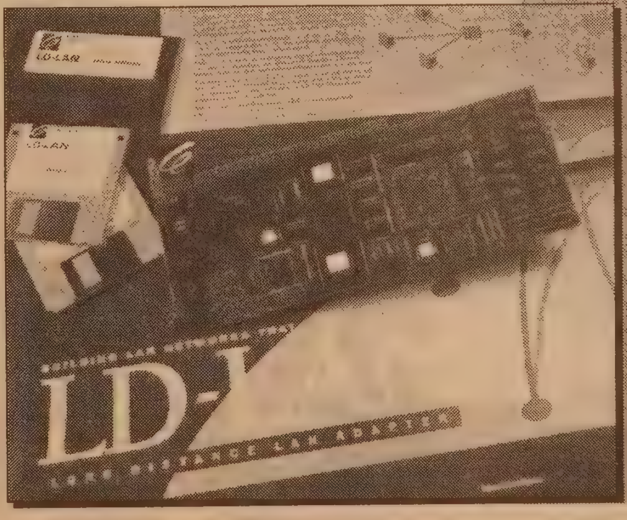
WAN Connection Options

One of the biggest growing pains a LAN goes through is extending LAN services to remote locations, like branch offices. Remote users need to be able to access LAN resources, just like the folk in the main office, but how do you connect them? Modem dial-up "bridges" are easy to set up and only cost a couple thousand dollars, but offer only a fraction of the performance of a 56Kbps dedicated line with a pair of routers. 56Kbps dedicated lines are great performers, but they're a pain to install and maintain, and putting one in can easily cost $8000 in equipment and phone company charges. Enter Extension Technologies and their LD-LAN card, which offers twice the performance of a 56Kbps line for slightly more than the cost of a dial-up bridge.

The LD-LAN card is unlike any other Wide Area Network (WAN) solution, in that it is inexpensive, easy to install, and very flexible. Basically, it's an ISDN modem designed to act like a network interface card, and because it acts like a LAN card, you can plug it into a Novell file server and let NetWare's internal router manage the network traffic between servers, or you can use it to network individual PC workstations off-site.

The LD-LAN card works with an ISDN BRI, or Basic Rate Interface, which has two 56–60Kbps binary channels (called "B" channels), and one data channel (the "D" channel) for telephone connection information. Using the LD-LAN card, each "B" channel can be used to connect a different file server or workstation, or they can be combined to open a single 120Kbps data pipe between two locations. At $3000 for a

> Technical support at Novell isn't free, it's $200 a call ($100 if you're a CNE).



pair of LD-LAN cards and the required phone network terminators (called NT-1s), that's a lot of bang for the buck.

One advantage dedicated lines have over ISDN connections is their fixed cost. With ISDN, you pay connect time charges, just as you would for a dial-up modem connection, and while the charge is just pennies per minute, those fees add up when the connection is in use full time. To help keep line costs down, the LD-LAN card uses something Extension Technologies calls "flexible bandwidth." Using flexible bandwidth, the LD-LAN can be programmed to mask out network "broadcasts" and close the connection between locations when LAN traffic drops off, then reopen the connection as traffic resumes. For connections that have use of both "B" channels, the LD-LAN card can hold the second "B" channel in reserve, opening it up only when LAN traffic becomes heavy.

The most obvious use for a pair of LD-LAN cards is for building a WAN connection between two servers, and I think there's a great market for that, but I also think they'll find lots of users in the telecommuting market. The LD-LAN card's ability to dynamically open and close the connection on an as-needed basis is perfect for the sporadic LAN traffic generated by an individual LAN user, and closing the connection will help keep costs down and server ports open for other telecommuters. Extending ISDN performance to telecommuters will also improve their productivity—an ISDN connection has four to eight times as much capacity as a V.32bis modem.

Recently, I got the chance to try installing an LD-LAN card. Installation was quick and painless, and I thought performance was outstanding. The only problems with the LD-LAN card may be its price, which may be a little high for most telecommuting users (though not at all out of line for a WAN link between servers), and the availability of ISDN service, which is not available in all areas.

Still, for those in search of high-speed server-to-server and workstation-to-server WAN connections, the LD-LAN card is hard to beat. ■

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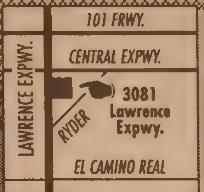

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INTERNET • BY JOHN S. QUARTERMAN AND SMOOT CARL-MITCHELL

Advertising On The Net

Solicited Vs. Unsolicited Information Is At The Heart Of The Matter Of Advertising On The Internet, USENET, And Many Other Networks

We recently co-sponsored a conference in Austin called Making Money on the Internet. How is that possible, since there is a widespread belief that even advertising is forbidden? Let's not try to address all issues of commercialization of the Internet here, but rather, let's focus on advertising.

Advertising on the net has hit the traditional news media lately, with various newspapers and occasional television shows reporting on recent postings advertising advice for getting your green card, a cream to thin your thighs, and a 900 sex number. Many of these reports have latched onto the angle of advertising, as if these postings were the first instances of advertising ever seen on USENET, the Internet, or related networks. I guess they never heard of the USENET newsgroups comp.forsale, misc.forsale, the more specialized newsgroups like misc.forsale.computers.workstations, or all the more local newsgroups such as tx.forsale, or, for that matter, all the *.marketplace and *.jobs newsgroups.

The problem with the particular postings we've mentioned was not that they were advertising, but rather how they were posted, namely to hundreds of newsgroups. This is called spamming, and it was spamming, not advertising, that was the main problem. USENET users like spamming about as much as they would having their office building spray-painted in gang graffiti.

If the *CBS Morning News* were suddenly interrupted during the weather report by an unscheduled advertisement for thigh cream, and the same thing appeared on all other television programs that day, in the middle of the Oprah Winfrey's latest revelations, preventing Jean Luc Picard from saving the cosmos, halting Rush Limbaugh in mid-complaint about Bill Clinton, I suspect many television viewers would be upset.

ClariNet is an information **service** using USENET news **technology** to distribute for-pay **newsgroups,** most of it **over the Internet.**

Television schedules commercials by time slot. USENET schedules advertisements by newsgroup. Posting to lots of inappropriate newsgroups is like broadcasting on television at lots of inappropriate times. Reporters don't seem to think of this analogy, probably because broadcasting on television is difficult, and posting on USENET is easy.

If you prefer, think of an analogy of a pirate radio station broadcasting on dozens of frequencies. I suspect Metallica and Travis Tritt fans would be just as annoyed as Nirvana or opera fans to have their favorite song interrupted in the middle by an ad for legal advice about the use of 900 numbers for purchasing thigh cream. The point here is not whether the radio station is KRAS or KNPR. The point is that the conventions of broadcasting in a limited bandwidth medium such as radio or television fit programs and advertising into time slots. The conventions of computer networks, where you have not half a dozen or forty channels, but thousands, are different.

As we were writing this, NPR (National Public Radio) carried a story which mentioned that the main daily newspaper in Topeka, Kansas once refused to print movie reviews because it considered them advertising. It seems that advertising is in the eye of the beholder even in the most traditional media.

The problem with postings such as the advertisement by Canter and Siegel of legal advice on getting a green card in the US Immigration lottery was not that it was advertising, but that it was rude. They didn't bother to follow the simplest convention of the medium they chose to use, namely posting only to a few appropriate newsgroups. Even if their posting had offered to give their advice away for free, it still would have been inappropriate because of how it was posted. What did it have to do with alt.sex or sci.geology, after all, newsgroups among those it was posted to? They are not heroes bringing the benefits of capitalism to a new market. They're just crass.

In fact, the more focused your posting is, the more likely you will not only reach your target audience, but also be accepted by them. If you want to sell a workstation, post your notice to misc.forsale.computers.workstations, not to talk.politics or rec.pets.cats. If you don't know which newsgroup to post to, read the misc.forsale FAQ (Answers to Frequently Asked Questions). It's posted to the misc.forsale newsgroups.

This is not to say commercial information can never be posted to USENET outside of certain newsgroups specifically designed for advertising. Far from it. Announcements of new products, bug fixes, answers to technical questions, and addresses for prices are all welcome in newsgroups related to a product, platform, or company. Hype and bragging about prices is generally unwelcome, it's true. If you write a message like a newspaper department store ad and post it to any USENET newsgroup, you will almost certainly get flamed. You have to tailor your message to the medium. You'll probably get flamed eventually anyway (it's customary on USENET, no matter what you post), but not as much.

Informational postings that include an electronic mail address or other pointer to a way a reader can ask for wanted information are generally welcome. Just stick a line on the end saying something like "for details about MIDS publications, send mail to mids@tic.com".

Let's not forget that a USENET posting is not static ink on newspaper. If you want

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Television schedules commercials by **time slot. USENET** schedules advertisements **by newsgroup.**

more information, you don't have to write a letter, put it in an envelope, stamp it, give it to the Post Office, and wait weeks for a reply. You don't even have to call a telephone number and suffer through voice mail.

USENET itself provides only news, and for that matter isn't really even a network, for that same reason. But USENET news is carried over other networks, including BITNET, FidoNet, UUCP, and the Internet. All of them have electronic mail. If you want information, you can reply in seconds to the original poster, or to an address included in the posting. If the information provider has set up an autoresponder, you may get detailed pricing information within seconds. If you're on a slow network you may have to wait minutes or maybe even hours; still a lot less than days.

If you are on the Internet, you have a wide range of other options as well, including file location by archie and transfer by anonymous FTP, menu browsing with Gopher, database keyword searches with WAIS, and hypertext with World Wide Web (WWW). All of these are information services you can use if the information provider has supplied a server. Since you contact them when you want more information, there is no question of them forcing information on you. If you really want to provide information that looks like a newspaper department store ad, you can do that with WWW, and nobody will mind.

That's the key, whether the additional information is supplied by mail or by a more sophisticated service, such as through WWW with nifty color graphics displayed by Mosaic. The user asks for it. You don't force it on them. Yet the user can get it quickly and readily whenever it's wanted. So information postings on USENET (and in other media on other networks) can have more effect than full-blown advertisements in traditional media, because the information provider doesn't have to try to cram everything into a thirty second TV commercial or a half-page newspaper ad. Instead, the advertiser can provide pointers and let the user select the information desired.

But doesn't this violate the NSFNET AUP (Acceptable Use Policy)? And isn't the first rule of the Internet that it shall not be used for commercial gain? These are both questions that turn up again and again not only in reportage in the traditional media, but also on the net. The answers are no and no. Let's take them in reverse order.

Starting way back before the Internet, its predecessor, the ARPANET, was funded by US government money but largely built by private contractors. BBN, for example, was in it not only for the considerable intellectual interest, but also for commercial gain. It's also hard to believe that MCI and IBM

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have been involved with NSFNET for all these years without any consideration of eventual commercial gain. Many CIX (Commercial Internet Exchange) members, such as PSINet, AlterNet, and CERFNET are certainly providing Internet backbone services for commercial gain.

Many computer vendors, including Apple, Digital, and Intel, use the Internet to distribute information about their products, to communicate with their customers, to provide bug fixes and sometimes whole operating system releases over the net. They are using the Internet for commercial gain.

ClariNet is an information service using USENET news technology to distribute for-pay newsgroups, most of it over the Internet. It has been merrily doing this for quite a few years now, with nary a protest from anyone.

But what if ClariNet distributes over the NSFNET backbone, or Apple sends a price quote to a university over it? Doesn't that violate the NSFNET AUP, which says the NSFNET backbone (actually, it's the NSFNET backbone service these days) is only to be used for research and educational purposes? Nope. The NSFNET AUP includes a loophole you could drive a television studio through (actually, Carl Malamud already did that). It also says activities in support of research and education are OK. Translated, that means that if a researcher or educator asks for it, it's not a problem.

The NSFNET backbone service is increasingly irrelevant as an arbiter of behavior in the Internet anyway, now that CIX members supply several other national backbone networks in the United States, and almost half of all Internet users are in almost sixty other countries, which NSFNET does not reach.

The issue of solicited vs. unsolicited information is not irrelevant, however, and is in fact the heart of the matter of advertising on the Internet, USENET, and many other networks. Time does not limit what can be transmitted in the way it does on radio or television, but it does limit what computer network users can and are willing to read. Information overload is real, and unwanted information is even less welcome online than junk paper mail. The reason is much the same (waste of time and other resources). The reaction is often stronger, because junk online can arrive right on your disk and your screen.

It's as if the annoying car dealer who advertises on TV suddenly took to breaking into your telephone conversations and insisting on detailing how his prices are so much better than the competitions.' I might write letters to his company, to the telephone company, to the Better Business Bureau, and maybe the FBI. Is it any wonder that the online reaction to spamming is similar, especially since sending off an electronic mail message is so much easier than sending a paper letter.

Some say the real problem here is flaming. That is, that the spammers did nothing

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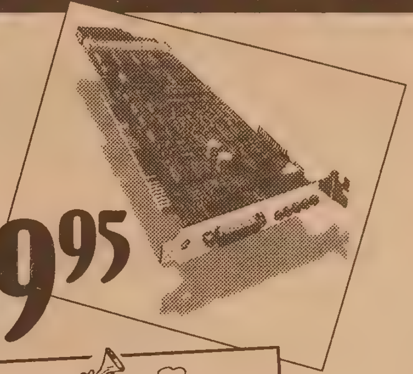

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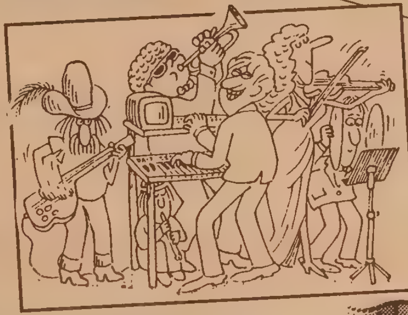

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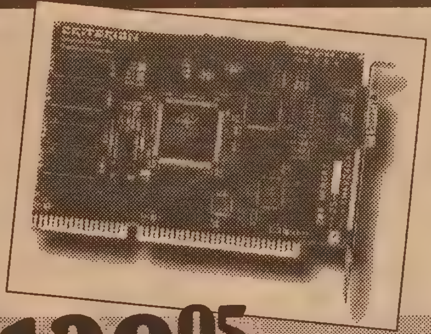

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Information overload is real, **and unwanted information** is even less welcome **online** than in junk paper **mail.**

to justify all the verbal abuse they're getting. Well, on the net, exactly what else is the recourse? Calling the FBI about anything online, experience shows, is likely to get you little action or potentially very inappropriate action. Law enforcement agencies in general have little knowledge of the online world and even less funding to get it. Besides, what law did Canter and Siegel violate? Apparently none. But that doesn't mean we want them in every one of our online salons.

Spamming does reduce the value of the net to its users. A few cases do not produce the long-predicted imminent death of the net. They are worrisome, however, because if a lot of people see spammers treated as heroes by the traditional media and choose to emulate them, an epidemic could ensue. The solution is not legislation, it is education.

Discussions of possible recourses on the USENET have gotten up to the idea of canceling offending articles. This is very worrisome in itself, because it raises the question of who decides what is offensive. USENET already has enough self-appointed censors at universities and companies. We don't need any more. We'd rather see the offenders flamed.

Practically, though, if the problem persists, spam articles will get canceled (it's already happened) and other measures will be taken, probably including isolating hosts that repeatedly post them. A better way would be for such posters to channel themselves into more appropriate newsgroups. Stranger things have happened on the net. As the influence of the net spreads to the general public, perhaps we'll see spamming recognized as bad manners.

Meanwhile, you can advertise on USENET and on the Internet. We've just told you how; now you don't need to pay anybody to learn it. Just follow the simple guidelines listed here and learn the rest as you go. ■

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Duke Of URL Greps Hypertext

A recent episode of *Northern Exposure* contained an oblique reference to the “Productivity Paradox” (apparently one of the great unsolved mysteries of the Pleistocene Era, if not of the present age). It was an engaging idea, and a flurry of net-surfing followed which yielded absolutely nothing about stone-age overachievers.

Quite by accident, however, the search for more information about the Productivity Paradox did turn up something called “htgrep.” Htgrep is a program written (originally as a perl script) by Oscar Nierstrasz of the University of Geneva, and it does for hypertext what grep does for ASCII files. Life is good: hypertext is greppable!

Grep: A Refresher Course

Perhaps you have to understand how neat grep is to get excited about this. Grep (Global Regular Expression Print) is one of the tools that enabled UNIX to make the leap from “operating system” to “state of mind.” Grep is a tool for searching through one or more files for a word or pattern provided by the user. By default, lines that match the search string are displayed, but grep's output can be adjusted in any number of ways.

Grep is not a complicated tool. It is ridiculously easy to use, and using it repeatedly will eventually change the way you think about files and their contents.

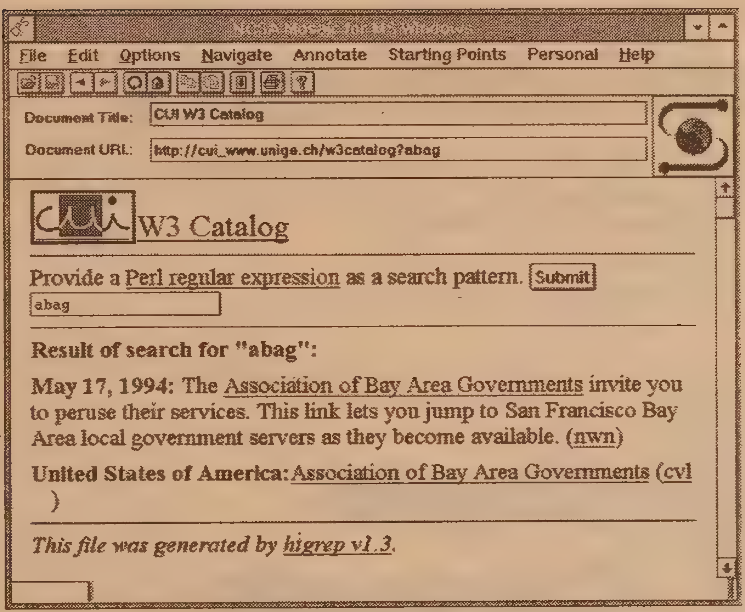
The general form of a grep command is:

```
grep pattern filename
```

where pattern is the expression you're trying to locate and filename is the name of the file (or files) to be searched. A grep command to search all the files in your current directory for occurrences of the word “network” would look like this:

```
% grep network *
journal: particularly those that are linked in networks. This is a nice thing
journal: News, or just a local area network.
words: network
```

(The percent sign in this command is the UNIX shell's prompt.) In this example, two references to “network” were found in a file named “journal” and another in a file named “words.”


NCSA Mosaic for MS Windows
File Edit Options Navigate Annotate Starting Points Personal Help

Document Title: CUI W3 Catalog

Document URL: http://cui_www.unige.ch/w3catalog?abag

W3 Catalog

Provide a Perl regular expression as a search pattern. Submit

abag

Result of search for "abag":

May 17, 1994: The Association of Bay Area Governments invite you to peruse their services. This link lets you jump to San Francisco Bay Area local government servers as they become available. (nwn)

United States of America: Association of Bay Area Governments (cvl)

This file was generated by higrep v1.3.

Two things elevate grep over your garden variety search utility: a single grep command can search large numbers of files, and the regular expression notation used to specify search patterns is extraordinarily versatile.

For example, a grep command to search a file named “words” for any eight-letter, lower-case, single-word palindromes would look like this:

```
grep -e ‘\<\([a-z]\)\([a-z]\)\([a-z]\)\([a-z]\)\4\3\2\1\>’ words
```

It takes a while to figure out commands like that, but it's immensely gratifying when you do. You begin to realize that this was just the sort of open-ended puzzle the people who invented grep hoped you would come up with.

After A Quarter Century, Grep Shows Its Age

As you might expect of a twenty-five-year-old program, grep is based on some assumptions about files that seem naive today. Grep is designed to work on ASCII files, files you can display on your computer screen without the aid of a word processing program or a PostScript interpreter. Grep is line-oriented: it expects to search for the requested pattern in a finite-length line of printable characters. When a pattern match occurs, grep prints the line containing the pattern. Grep does not like lines over a certain length.

> Life is good: hypertext is greppable! Perhaps you have to understand how neat grep is to get excited about this.

We still talk as though text files and ASCII files were one and the same, but contemporary filesystems are dotted with islands of un-ASCII-ness: files that contain text in one or another binary form and are impossible for grep to search.

Virtually all word processor files are littered with control characters, irregular end-of-line notations, and other unprintable codes. But word processing software is hardly the only grepless preserve.

There was a time when ASCII and “printable” were practically synonymous, but printers eventually became much fancier than the ASCII character set. The rush to exploit display/printer technology has left us with visually pleasing text that is often more difficult to use than the clunky ASCII files that preceded it.

The emergence of online faxes has taken its toll as well, contributing files containing binary images of the printed page. (Is there anything worse than getting a pic-

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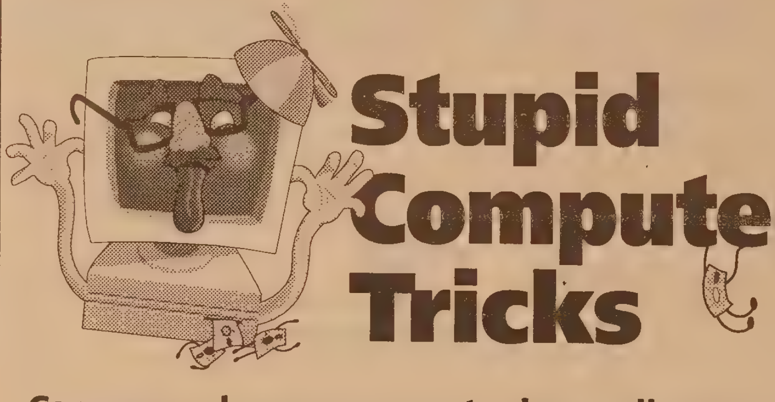

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ture of a page originally printed on a line printer when you know that the information on the page is sitting somewhere in a file that could be grepped?)

All these trends produce files whose text content can only be searched by human eyes or proprietary programs. The growth of these islands of binary-formatted text suggests that a general purpose text-searching tool like grep might be a thing of the past, a nice idea whose time has come and gone.

Grep Meets Hypertext

At first glance, hypertext appears to be just the sort of thing to nudge grep closer to extinction. The simple definition of hypertext is "text that is not constrained to be linear." Hypertext documents have embedded links to supporting documents. The links enable the reader to jump from one topic or document to another without reading things straight through.

If you haven't encountered hypertext yet, wait a couple of months; you'll be soaking in it. The World Wide Web is a hypertext-based information retrieval system that is rapidly becoming one of the main attractions of the Internet. Large audiences are beginning to discover that hypertext can be displayed effectively on personal computers, and PC versions of hypertext viewers (like Mosaic) have become popular tools for prowling Internet resources.

Of course, hypertext doesn't work if you can't signal the user about where the links are embedded, and as long as you're embedding links, you might as well embed relevant images and dress the text up in appealing fonts. Grep diehards have learned to regard with suspicion any document that has the look of typeset, and hypertext documents look completely impervious to ASCII-based search tools.

Fortunately (or perhaps not) htgrep works on hypertext documents without suspending the usual constraints within which grep works. Htgrep works because hypertext documents actually start out as ASCII files. To be sure, the source file for a hypertext document is not an ordinary ASCII file. Hypertext source files are written in two languages, the one of interest to the reader and a markup language whose instructions produce the striking visual effects that make the text interesting and link it to other documents.

The markup language that htgrep recognizes is HTML (Hypertext Markup Language, the standard markup language for the World Wide Web). The markup language in a hypertext document can be arbitrarily complex, and producing a tool to search the text part of a hypertext file and ignore the Markup language notation is no small feat.

Like conventional grep, htgrep expects the user to supply a search pattern and a file specification, and it returns text that contains the pattern. To its credit, htgrep uses the extended regular expression syntax that is built into perl: grep users will be able to search for things using a familiar notation.

Grep operates on files and recognizes single lines as the basic unit of text for pattern matching. Htgrep works a little differently. It expects more complicated input and it returns more complicated output, and consequently htgrep is not the sort of program you run from the command line.

Htgrep is ordinarily executed by a hypertext browser, or some other program that is capable of interpreting hypertext for the user. This is a mixed blessing. Being embedded in a browser means that htgrep doesn't lend itself to the same kind of play that

Continued on page 166

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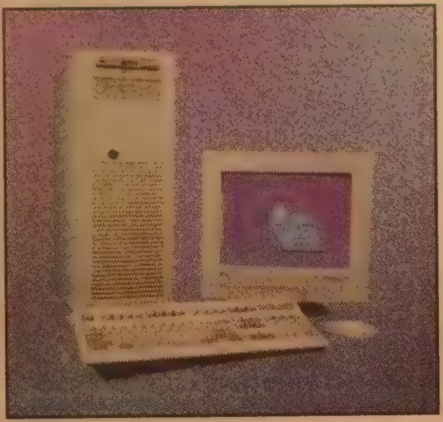

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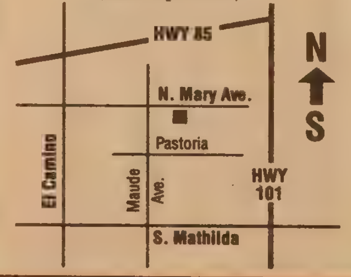

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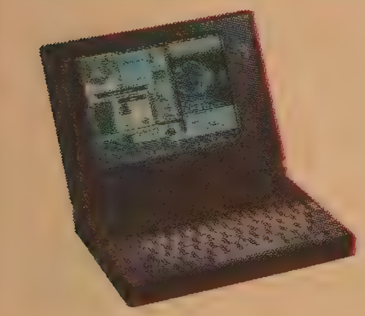

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OS/2 • BY FABIAN PASCAL

OS/2: 2.1 ServicePak—Still Tricky After All These Years

IBM has recently released the ServicePak (SP) for OS/2 2.1, a set of Corrective Service Diskettes (CSD) labeled XR06200. CSDs are IBM's maintenance releases (read: fixes) and there were enough of them by now to expect them to be straightforward and smooth. But with software becoming more and more sophisticated, "event-driven," and "object-crazed," and the hardware more and more fragmented, this is becoming increasingly hard to achieve for vendors, and difficult for users. It used to take a year or less to upgrade and enhance software, now it takes longer just to fix it. OS/2 2.1 itself was a CSD for the original 2.0 version and it was released about a year after 2.0.

Then there's the sheer size, which keeps growing. OS/2 2.1 consisted of 17 3.5" disks, the SP has 21 (twenty-one)!!! No wonder vendors, including IBM, offer CD-ROM options which, at this rate, will become unavoidable. There are two README files and a file listing hundreds of APARs (fixes), and they have the following sizes:

README	72KB	Sw/hw hints from IBM testing of the CSD
README.INS	44KB	Installation information
XR06200.XRF	64KB	List of fixes

To Install Or Not to Install?

Since CSDs fix problems by replacing system files with new ones, from the number of disks it appears that the SP replaces practically the whole system. Now, this would suggest that the need to install it is a foregone conclusion, but consider the following from an electronic mail system:

"Should you install the SP or not? That's hard to answer. If the SP fixes something that is broken for you, I'd say yes. If you don't have any problems, you might want to wait. Several vendors have reported that the SP introduces problems. I am running the SP and have a problem with HP LJ custom forms no longer working across the network."

UNLESS THERE ARE SPECIFIC KNOWN REASONS NOT TO DO IT, THE AVERAGE USER OUGHT TO RISK INSTALLING THE CSD, GIVEN THE SCOPE OF THE FIXES.

Which may be reasonable with almost any software upgrade these days, but in the case of OS/2 this is hardly a trivial matter, because a tried backup and restore facility does not exist yet, in case something goes wrong (but see below). If something goes wrong—and the chances vary with the hardware, OS/2 features and software installed—those who started with OS/2 2.0 will have to reinstall both it and 2.1, then recustomize the system. Anybody who has experienced either of these would probably think twice (this, of course, raises the interesting question of how many CSDs IBM will issue before it comes up with a new OS/2 version that will release users from the hazard of reapplying all of them).

If you have problems under 2.1, you still need to know whether the SP fixes them (even if it fixes existing problems, it may produce others, of course). But the XR06200.XRF file lists more than 600 fixes. Not only is it tedious to check them out, but consider IBM's own qualifier:

THE FOLLOWING LIST PROVIDES A BRIEF ABSTRACT OF EACH APAR FIXED
* * in OS/2 2.1 XR06200 ServicePak. Every effort has been made to
* * include all APARs fixed in OS/2 2.1 on this list, however some
* * APAR numbers could be omitted from this list but are fixed in
* * this ServicePak. If you have a concern with an APAR number not
* * on the list, please contact IBM OS/2 Support for verification. * *
* * Note: Some APAR numbers listed below are duplicates of other
* * APAR numbers. Where this is the case, the duplicated APAR
* *number is listed for information only.

And even if you did go through them, what could you make, for example, of

"PJ09067: SSF CONTROL INVISIBLE FLAG TO DOSSTARTSESSION IGNORED AFTER SHFT_MAXIMIZE ON OS/2 COMMAND WINDOW"

or

"PJ08922: TRAP 000E AT 0148: 00007D13 — SYSSERVVDM + 0X4B DUE TO RETURN CODE FROM SYSSERVWAITQ NOT BEING CHECKED IN SYSSERVVDM."

of which there many alike?

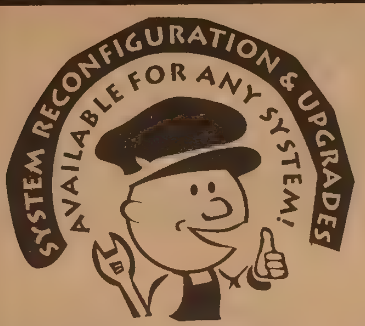
The README file provides information about various hardware, OS/2 features and software that are known to be affected by the CSD (including networks), and some post-installation steps you may need to take to ensure that they work properly. You should check if it covers anything relevant to your configuration—it may help you with the installation decision. But unless there are specific known reasons not to do it, the average user ought to risk installing the CSD, given the scope of the fixes.

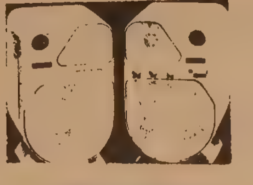
Preparation

Should you decide to go for it, do your utmost to backup as much of your OS/2 system as you can. I have heard of various attempts at backup software and even looked at some, but I was not impressed with either their capabilities or their quality. Moreover, some of the software only works with floppies (forget that), or tape (which is slow), and I have a Bernoulli Multidisk 150 external drive which makes a lot of backup sense.

Symantec has just released Fastback Plus for OS/2, and even a superficial look seems to indicate lots of capabilities and flexibility. But it takes some learning, and I haven't had a chance to evaluate it yet. Nevertheless, with some help from the product's manager I managed to learn how to do a full backup of my OS/2 system par-

continued on page 244





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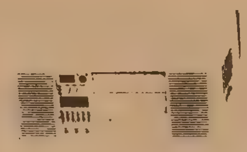

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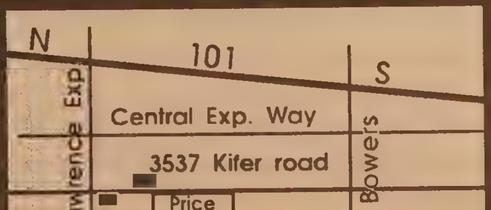

BY MATTHEW LEEDS

Sniffing Out Trouble

Protocol Analyzers Make Network Troubleshooting Easier

Managing a network is a little like herding cats, you're always chasing the next problem. Along with cable testers, punch down tools, and spare patch cords, a software protocol analyzer belongs in every network manager's tool chest. A protocol analyzer can be a powerful diagnostic aid in solving some tricky packet problems.

I looked at two software-based protocol analyzers for Ethernet networks. Both run on the Macintosh platform. NetMinder Ethernet by Neon Software and EtherPeek from the AG Group have both been around for some time. Each has gone through several revisions, improving the feature set and functionality as they mature. While both are capable of the basic functions required of a protocol analyzer, there are important differences between them.

NOT ALL PROTOCOL ANALYZERS CAN HANDLE ALL PROTOCOLS.

Protocol analyzers capture and display packets traveling on the network. In addition to capturing packets they usually offer a set of additional features including:

- Time stamping of captured packets—this lets you see, for example, how long a period of time elapses between a request and acknowledgment.
- Decoding of packets—the raw hexadecimal data in a packet is not very intelligible. Decoded information in a packet includes its source and destination, the protocols in use, and the data contents of packets. Not all protocol analyzers can handle all protocols.
- Name to address mapping—a table can be created that lists the hardware address of each node on the network (contained on the network interface card in each computer) and a name, often the user's name or server name. The process of creating an accurate table (and keeping it accurate) can sometimes be arduous.
- Filtering—a busy network can quickly fill the buffer of any protocol analyzer. Filtering can let you capture packets from only those nodes of interest or limit the display of captured packets to those you're specifically interested in. A good protocol analyzer comes with many preconfigured filters and lets you easily build your own as well.
- Triggering—even with filters you may want to limit the number of packets you capture. Waiting for an "interesting" event to occur is best handled by your software. You can set triggers to start packet capture only after a specific event occurs. A variant of a trigger is an alarm; it lets you know a threshold condition has been crossed, usually with an audible alarm. Alarms can sometimes send email, or send a message to a pager.
- Generate network traffic—this can allow you to "stress test" your network or test a specific network device such as a bridge or router.
- Monitor and measure network utilization—Ethernet networks degrade rapidly once they reach a certain level of saturation. It's important to be able to monitor and measure the level of network utilization during peak workloads. With this information you can evaluate the need to segment a network into subnets.
- Save capture sessions—you should be able to save the results of a capture session, and reload it for further analysis. You might also want to be able to load sessions captured by other protocol analyzers or provide your remote offices with a capture-only version of your protocol analyzer so that they can send you capture sessions to analyze.

Protocol analyzers can solve a tremendous variety of problems. For example, you might be getting complaints that the network "seems slow" at a certain time each day. You can quickly pinpoint where the additional traffic is coming from by running a capture session at that time of the day and sorting the station pairs (the two nodes that exchange a given packet) by total packets exchanged. The most active will pop to the top. Also check the actual traffic volume against your baseline (you do know the baseline traffic volume on your network, don't you?) to see if it is significantly higher than normal.

Pros And Cons

Past the basics, each product has some important differentiating features. NetMinder offers something called "Packet Inference," a rules-based analysis of "unusual conditions." You can use this on a real-time basis (but lose packets) or apply it to a capture sequence after the fact. It provides a text explanation of those events it considers significant. This can be very helpful to a novice, or as a training tool for understanding packet analysis. A similar feature is the "Explain" function that gives a short explanation of each packet type.

Neon bundles several useful utilities with NetMinder. Diagnostics will perform tests on many Macintosh Ethernet cards and will display information on those it recognizes. It can also calculate network utilization. Addresses monitors an Ethernet network looking for names to map to Ethernet addresses. It can find names for AppleTalk nodes, Unix hosts, and many routers and bridges. It can generate text files that can be imported into a spreadsheet or into NetMinder. NetCapture is a capture-only version of NetMinder that can be installed on remote networks to capture packets for analysis by NetMinder. This is very useful if you are responsible for supporting remote offices or other networks.

NetMinder has some limitations with respect to its filters. It can only have five fil-

Continued on page 246

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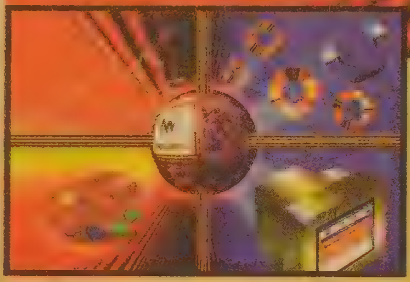

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(i=interlaced) Graphics modes support varies between applications.

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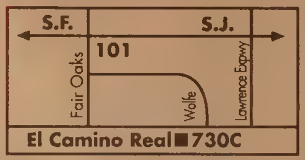

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intel inside

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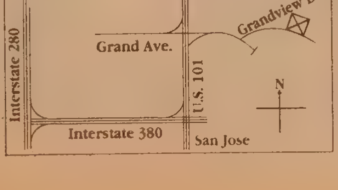

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I486SLC2-66 w/64K	VLB	$322		$759	$921	$1,187	$1,234	
i486SX-33 w/128K	ISA	$282		$728	$872	$1,142		
i486SX-25	ISA	$244	$499	$689	$833			
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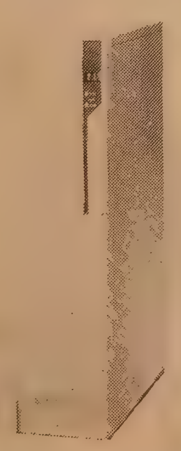

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CPU Power Est. (Mips)	21	42	42	42	60	75
Cache	256K - 512K	256K	256K - 1MB	256K - 2MB	512K	512K - 2MB
RAM	16MB - 128MB	16MB - 64MB	16MB - 96MB	16MB - 160MB	16MB - 128MB	16MB - 256MB
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I/O	(2) 16550 S, P	(2) 16550 S, P	(2) 16550 S, P	(2) 16550 S, P	(2) 16550 S, P	(2) 16550 S, P
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Video Power (Mws)	54	56	56	56	56	_
Operating System	MS DOS, WFW 3.11	MS DOS, WFW 3.11	MS DOS, WFW 3.11	MS DOS, WFW 3.11	MS DOS, WFW 3.11	MS DOS, WFW 3.11
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486/P24T

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MustangS486DX-50 256k Cyx/Intel	**$394/485**
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CON/WD250MB 14msec	$222
QTM 270/MXT 245MB 15ms.	**$223/232**
WD 340/MXT 340MB 12/14 ms	$254/246
CON/QTM 340MB	$242
CON 420MB	**$246**
WD 425MB 13msec	$271
QTM 540MB 11msec	**$327**
MXTR/WD 540 12msec	$354/379
MXTR 540 8.5 msec	**$375**
CON 540MB 12msec	$342
CON 1.0 GB	$700
MICROPOLIS 1/1.8GB 10ms	$759/965

SCSI - 3.5"

QTM 42MB SCSI	$69
CON/QTM 170MB 17msec	$189
CON 212MB 12 msec	$202
MXTR 213	$202
MXT 245/QTM 240MB Fast	$249/239
MXT 290	$256
MXT 340MB 15 msec	$267
CON 340MB 13msec	$268
QUN 540MB FAST	**$370**
MXT 540MB/CON 540 8/12 ms	**$423/434**
FUJ 1.2GB 10msec 5 year	$719
DEC 1.07GB DSP3107 9ms	$757
DEC 1.6GB DSP3160 9ms	$986
Quatum 1.08 GB	**$655**
MICROPOLIS 1/1.8GB 10ms	$759/965
HP1.2GB 10.5msec	$779
ST1.2GB ST31200N 9 msec	**$710**
Quantum 1800s 1.8GB	**$990**
ST12400N ST2.1GB 9MS	$1439
DEC 2.1GB DSP3210 9ms	$1259

SCSI - 5.25"

DEC 3.0GB DSP5300	$2046
DEC 3.5GB DSP 5350	$2312
DEC 4 0GB DSP 5400	$2488

SUPER HARD DRIVES

Seagate Barracuda 3.5" HH (8 msec avg. seek, 4.17 msec lat., 7200 RPM)

ST11950N/ST12550N 1.7/2.5 GB	$1535/1787

FLASH CARD HARD DRIVE

ST 75A 1.8" 5.2MB IDE<1.5MS	$484
ST 710/720A 1.8" 10.4/20.9MB	$888/1177
ST 740A 1.8" 41.9MB IDE<1.5ms	$2068

EXTERNAL HRD. DRV. SUBSYSTEM

FOR EXT. HARD DRIVE........... ADD $99

TAPE DRIVES

(<500MB TAPE-BACKUPs)

Colorado 120 / 250MB	**$99/149**
Colorado KE-10 External kit with card	**$105**
Colorado External port card	**$37**
FC-10 high perf card	**$85**
Colorado Trakker 250MB	**$329**
Archive 250MB w/QIC,150MB/min,1"H	**$146**
Archive Viper 250MB hh SCSI I/E	**$335/425**

(>500MB for PC / SERVER)

Viper 525MB hh SCSI Int/Ext 6MB/sec	$440/530
Mountain 2/4GB Filesafe Int Dat 4mm.	$1629/1959
Archive 4320 NT 2.0GB DAT 3.5"	$829
Archive 4324NT 4.0GB TURBO DAT 3.5"	$1075
Colorado 2.4 / 4.0 GB Qic 5.25	$929/1155
HP 2GB DAT 4mm Int/Ext	$879/979
HP 4-8GB DAT 4mm Int/Ext	$1080/1150
WANGDAT 3100 2.0GB 4mm Int/Ext	$902/1020
WANGDAT 3200 4-8GB 4mm Int/Ext	$924/1035
EXABYTE 750MB HH MINI Int/Ext	$692/860
EXABYTE 8205 5GB HH Int/Ext	$1595/1695
EXABYTE 8505 10GB HH Int/Ext	$2339/2505

(above drives require special contr & soft drivers)

TAPE BACKUP DRIVERS

Novaback for DOS//OS/2	$65
Novanet Multiuser NLM	$279
ARC Serve Solo	$175
SYTOS for DOS/NOVELL, GEN	$120
Conner Backup Exec for Dos/Win v3.3	$79
Conner Backup Exec for Netware v3.1	$259

MAG/OPTICAL (Rewritable)

TEAC 128MB 3.5" Int/Ext	$625/729
PinnacleTahoe 130 portable 3.5"Opti w/inter.	$999
IBM 127MB 3.5" Int/Ext	$833/943
Panasonic LF-7010 1GB 5.25	$2799
HP 1.3GB 5.25" SCSI-2 EXT	$2799
MAXOPTIC 1GB Tahiti IIM 35msec	$2260

REMOVABLE DRIVES

Syquest 44MB Dr.	$249
W/Ext Case, Cables, Cart, Cont	$379
Syquest 88/105MB Dr.	$308/389
Bernoulli 44/99 Insider	$907/840
IDE: Upto 1GB removable kits	$39
SCSI: Upto 1GB Removable Kits	$138

DISKETTES & CARTRIDGES

Floppy 1.44 Bulk 20+/100+/500+	**$.49/.44/.39**
Floppy 1.2 Bulk	**$.44**
Tape DC2120 250MB..Formatted	**$16**
Tape DC 6250 5.25", 1/4" Cartridge	$25
Tape DC 6525 5.25", 1/4" Cartridge	$30
TK50 for DECs.	$24
DAT 4mm 90 mtr HP/OEM	$20/14
DAT 8mm 112 mtr	$14
Syquest 44/88/105MB Cart.	$62/94/85
Bernoulli 44MB/90MB 3Pk	$289/298/264
Mag-Opt 600MB/650MB 5.25" Rewrite	$86/86
Mag-Opt 1.2/1.3 GB Rewrite	$124/124
Mag-Opt 600/650MB WriteOnce.	$86/86
Mag-Opt 1.2/1.3GB WriteOnce	$128/128
Mag-Opt 128MB 3.5"	$58
Mag-Opt 650/1.3GB WORM 5.25"	$160/193

VIDEO ADAPTERS & MONITORS

ISA/EISA ADAPTERS

MGP	$13
VGA 256k	$28
Trident 512K/1MB	$39/58
Tseng 1MB	$73
Mustang 1MB Window Accel	$58
Diamond Stealth 24	$137
Diamond Stealth Pro 1/2MB	$249/$339
Orchid Fahrenheit 1MB	$137
Hercules Dynamite Pro 1/2MB	165/204
Hercules Graphite Pro 1/2MB	$274/418
ATI Ultra Grpx 1MB w/Mouse	$214
ATI Ultra 8514 1 MB VRAM(Dual mon. cap.).	$176
ATI Ultra Pro 2MB (no mouse port)	$294
Genoa 7900 w/1MB	$95**
Genoa 8560 w/ 1MB	$171**
Genoa 6200	$36**
ATI Ultra Pro EISA 2MB	$294
AMI Fast View EISA VGA Graphics w/1MB	$221

VLB/PCI ADAPTERS

(wm = winmark ver2.5)

MustangVT Trident 1/2MB	**$69/114**
MustangVC Cirrus logic 5428 1/2MB	**$79/126**
MustangVS S3-805 1/2MB	**$89/134**
Spider 32 1MB/2MB,20 WM	**$95/139**
Spider 32 Plus 1MB	**$98**
Spider Blk Widow 1/2MB 54 WM	**$134/197**
DIAMOND Stealth 24vlb 1MB	**$139**
DIAMOND Stealth pro	**$255/316**
DIAMOND Viper 2MB,9000,50wm	**$322**
ORCHID Fahrenheit S3-805,1/2MB	**$135/193**
ORCHID Celsius 1/2MB	$216/266
ORCHID Kelvin 1/2MB	$149/194
Hercules Dynamite Pro 1/2MB	**172/225**
Hercules Graphite Pro 1/2MB	$274/418
ATI Ultra Pro 1MB DRAM	$137
ATI Ultra Pro 2MB, 26wm	$305
Cirrus Logic 5428 PCI 1/2MB	$126/171
Orchid Kelvin PCI 1/2MB	$149/194
Spider 64 PCI 1/4MB	$193/311
ATI VRAM 2MB PCI	$249
DIAMOND VIPER 2MB PCI	$338

CAD SPECIALITY ADAPTERS

NUMBER NINE - #9GXI/GXE

L10 ISA or VLB Retail/Bulk	$249/236
L11 ISA or VLB Retail/Bulk	$359/339
L12 ISA&VLB Retail/Bulk	$420/406
L14 ISA&VLB Retail/Bulk	$649/599
L20/21 lite	$515/679
L23 WIND/ACAD,T34020,1280,16C	$955
L29 T34020,1024X768X16.7M Color	$1359

MATROX

MGA-VLB 2/Plus	$429/479
MGA-VLB 4/200	$865
MGA-IMP 3A&V	$715
MGA-PRO 4.5V/4.5+z buffer	$1119/1399
MB memory upgrade	$209
MGA-PCI 2/2Plus	$385/429
MGA-PCI 4/4-200	$744/968

METHEUS CORPORATION

Premier 928 VL2(1MB)/4(2MB)	$324/559
Premier 928 ISA 1M/2M/4M	$297/422/725
MODULE 1MB Memory	$119
1104 Plus 256 Hz, MultiDisplay	$1295

(We do not have the high end CAD adapters and monitors on display and carry only a few in stock - these are on Just-In-Time inventory basis - please place orders in advance-the prices in parenthesis are on a cash basis only)

9" - 14" MONITORS

MONO

Mono 14" amber/white	**$79**
Mono 9" VGA/14" SVGA	**$104/91**

VGA/SVGA

SVGA 14" 1024 x 768 .39	**$189**
SVGA 14" 1024 x 768 .28 Int	**$216**
SVGA 14" 1024 x 768 .28 NI	**$229**
Black SVGA 1024 x .28 I/NI	$270/282
Kanaka 14" Int/NI w/Hitachi Tube	**$233/256**
CTX 14" 1024 x 768 .28 Int.	**$247**
CTX 14" 1024 x 768 .28 NI	**$260**

CAD MONITORS

Miscellaneous

KFC15".28 1280x1024NI wo/w Digital	**$327/385**
KFC 17" .26 1280x1024 NI	**$739**
Sony	1604s
OEM	$869edd
Mitac 17" .28 1280x NI	$649
Mitac 17" .26 1600x NI Energy* 3yr warnty	**$699**
Mitsubishi 15FS/17FS DiamScan	$498/1039
MAGNVX 15".28 1280XNI MPR2 digdisply	$355
MAGNVX20CM64 20", 1280, .31.($1110)	$1150

NANAO

F550i 17", .28,1024NI MPR2	($888)$933
F550iw17",.281280NI MPR2	($968) $1017
T560i 17",.25 1280NI, MPR2	($1482) $1556
T560iw,.26 1280NI,MPR2 Promo	($1241)$1305
T660i 20",.30 1280NI MPR2	($2224) $2336
F760iw21".31,1280NI,MPR2	($1975) $2073

NSA-Hitachi

CM1797 17`.28.1280NI,MPRII	($1050)$1099
CM2095 20" 1280 Anti Glare	($1259) $1320
CM2087 20" 1280 72Hz Mic	($1519) $1576
CM2187-515 21" .28 1280NI	($1929) $1995
CM 2188 21" .28 1280NI	($2230)$2289

Hitachi America - ACCUVUE

PS-20,.31dpi 1600x NI	($1555)$1618
PS-21,.28dpi 1600xNI	($2041) $2122
PS-21A,.28dpi 1600xNI	($2295)$2389
PS-21.28dpi 1600xNI Mic	($2354) $2449

Sony

CPD1430s 14" 1024NI .25	($539)$555
CPD1730 OEM 1024NI .25	($828)$859
CPD 1730 Original 1024NI,.25	($970)$998
GDM17SE 17" 1600NI .25	($1109)$1144
GDM2036S 20", .1280NI,.30	($1879) $929
GDM2038 20",1280NI,.30	($1989) $2059

Nokia

17" 447B Trin.25dpi,1280x	($927)$975
21"445M.26,1280NI	($1978)$2029
21"445X.26,1600NI	($2566)$2615

Sampo

Sampo KDM1767 17" .28	($675)$719
Sampo 1777 17" .28 Microp	($755)$795
Sampo 2055 20" .31	($1040)$1075
Sampo KDM2077 20" NI 1280 .31	($1460)$1520

NEC

CDR-400/500	$415/$465
CDR-600/900	$495/$965
3V/4FGE	$495/($635)$666
5FGE/FGP17".28,.($1007)$1049/($1125)	$1165
6FGP21",.28,1280NI	($2055)$2125

MAG

LX1564 OEM 15" .28, 1280NI	**$399**
MX15F 15"MPR II	($459) $477
DX 17F 17" .26 1280x	($725)765
MX17F,17".26,1280NI,Mic Org.	($865) $898

Prices given in bold are usual stock items, prices not in bold are special order items and require a 20% deposit, are not returnable, and take 2-3 days lead time.

CASH COUPONS

MONITORS
MITAC 17"
.26 1600 NI
ENERGYSTAR
3 YEAR WARNTY
$679

MONITORS
KFC/KANAKA
15" .28 1280
$315

COMMUNICATIONS
2400MODEM..$24
96/24 F/M...........$35
14.4 INT F/M.......$75

COMMUNICATIONS
US ROBOTICS
14.4 F/M INT
5 YEAR/16550 UART
$ 9 9
(limited time, one per customer)

MOTHERBOARDS
486 DX VLB W/256K
DX-33 CYRIX...$238
66 AMD/INTEL..$342/443
100DX-4 INTEL.....$763

MOTHERBOARDS
PENTIUM
Capricorn series
60 Mhz PCI..$984
66 Mhz PCI/EISA.$1,213
90 Mhz PCI........$1,388

ADAPTERS
CONTROLLERS
IO W/16550...$29
SCSI w/DRIVERS.....$49
ADAPTEC VLB SCSI..$289
ADAPTEC PCI SCSI...$279

ADAPTERS
V L B / P C I
CL 5428 1MB.........$79
HERCULES DYNA 1MB....$159
DIAMOND VIPER 2MB....$329
CL 5428 PCI 1MB.............$121
ATI PCI 2MB.................$249

Micr MARKETPLACE

MULTI MEDIA

CD-ROMs

IDE TYPE CD-ROMs

CD-ROM-#1-of-the-Month
Mitsumi Kit 350msec, 150 KB/S.........$79

Panasonic 562 DblSpd.320ms, 300kb/sec	**$148**
Mitsumi Dbl-Spd 250ms,300kb/sec	**$143**

Super Multi-Media Complete Kit on Sale!
Mitsumi CD-ROM, 150KB/sec, 350ms
8 bit Sound Blaster Compatible Card (for Win)
Quickshot Warrior joystick
Shielded PC spealers
Deluxe model microphone
Award winning Apogee sound-supported games; all for.................$138!!!

SCSI CD-ROMs

NEC 3X 510CDR Ext 195ms,450KB/sec	**$434**
NEC 3XP Portable 250ms,450KB/sec	$460

CD-ROM-#2-of-the-Month
NEC 3X CDR-510 Multispin,
195ms,450KBS....$339

TOSHIBA 3401 B/E 200ms, 300kb/s I/E.	**$296/380**
TOSHIBA 4101 B/E 235ms,300Kb/sec Int	$210
Texel 3028/5028 240ms, 335kb/s I/E	**$266**/350
SONY CDV561, 295ms, 300kb/sec	$286
Future Domain SCSI CD-ROM Kit	$69

AUDIO CARDS & MPC KITS

Hyena Snd Blster Comp. 8bit Sound Card	**$39**
Hyena w/ Speaker, Joystck, mcrphn, game.	**$53**

MEDIA VISION

Pro Audio 16 Basic	$91
Pro Audio Spectrum 16 ORG	**$95**
Pro Audio Studio 16/Power Pack	$199/69
Fusion Double CD16 Kit Int/Ext	$475/495
Pro 16 Multi-Media System/II	$609/764
Pro Movie Spectrum/Studio II.	$279/309

CREATIVE LABS

Sound Blaster Deluxe 8bit	$67
Discovery 8/16 Upgd. Kit	$369/429
Edutainment 8/16 Upgd. Kit	439/489
SoundBlaster 16 Basic/SCSI 2	**$102/171**
SoundBlaster 16 ASP SCSI/MCD	**$204/173**
Sound Blaster Voice Editor	$55
Wave/Video Blaster	$179/305

MISC MULTI-MEDIA PRODUCTS

Encyl 1:Encyl,Animals,World/US Atlas.	**$55**
Educational 1 plus Family health	**$68**
Joystick	**$15**
Mouse Systems Joystick	$25
Logitech Fotoman Digital Camera for PC	$465
Logitech SoundMan 16	$109
Intel Smart Video Recorder	$520
Cardinal Tech Digtl Sound Pro 16/Plu	$145/186
Video Logic Captivator Kit win3.1	$369
Midi Mate/CDPC XL	$49/1059

PLOTTERS, DIGITIZERS, SCANNERS & PRINTERS

PLOTTERS

HOUSTON INSTRUMENTS

V50 INKJET A-C,2MB BUFFER	$1298
HiPlot 7100 A-D 8 pen,LCD display	$2575
HiPlot 7200 A-E 8 pen,LCD display	$3395
DMP-162R A-E, 8 Pen, Roll Feed	$3958

DIGITIZERS

SUMMAGRAPHICS

III 12x12 w/16btn or 4bt & Pen	$313
III 12x18 w/16btn or 4bt & Pen	$539

KURTA

XLP 12x12 w/4btn & Pen	$225
XLP 12x18 w/16btn or 4btn & Pen	$429
XGT 12x12 w/4Btn.	$322
XLC 36x48 w/16btn or 4btn&pen.	$1520

CALCOMP

CALCOMP 12 X 12/12 x 18	$299/629
CALCOMP 18 X 24	$1275

SCANNERS

LOGITECH (HAND-HELD)

SCANMAN-COLOR/w OmniPage	$392
SCANMAN 256GS wo/ w OmniPage	$155/195
SCANMAN 32GS w/ OmniPage.	$128
Power Page Slide	$479

MICROTEK

SCANMAKER II/IIXE 600dpi w/OCR	$659/915
Scan-in-Dex Business card scanner	$275
Scanmaker IIG/IISP	$495/815

MUSTEK (Hand-held)

ScanMagic256,400dpiw/perceive	$109
ScanMagic Color,400dpi,256 grays w/perc	$215
GrayArtist,800dpi,256 grays w/perc	$159
Colorartist Pro,800dpi,256&colr w/per	$315

MUSTEK (Flatbed)

Paragon 600(dpi)24 bitclr,Photoshop	$629
Paragon1200(dpi)24 bitclr,Photoshop.	$998

UMAX Technologies

UC 630 PC,1200dpi max,24bit /256gray	$719
UC840,1600dpi max,16.8 million clrs	$949
UC1260,2400dpi max,16.8 million clrs.	$1225
UC1200SE,2400dpi max.,30 bitclrs	$2634

Hewlett Packard

HP IIP Grayscale scanner	$515
HP IICX Color scanner	$998

EPSON

ActionScning 300/ES 800C	$839/1329

Miscellaneous

Mouse Systems Gray/Color hand held	$175/125
Info 3gs 300dpi sheet fed	$375
Info SF-6C 600dpi sheet fed	$450
LeoScan 610 sheet feed,300dpi/256 gray	$599
Westbrook File Majic OCR for scanners	$285
Relysis 9600 800dpi color flatbed	$2995
Tamarack 6000/8000C	$729/853
Fujitsu M3096 11.7x17"	$4500

PRINTERS

Miscellaneous

Star Micrnix NX1001 9 Pin.120/220V	$134/144
Star Micronix 220v quantity of 100 only	$135
IGOR 132 9Pin Wide **220V** (Cyri..).in stock......with any purchase	$110

EPSON

Action 2250 9 pin,50sheet,240cps	$133
LQ570+ 24 pin wide, 269 cps, 11 fonts	$249
LQ 1070+ 24 pin Wide,252cps,11fts	$369
LQ 1170 24Pin ,2 resident fonts	$609
Stylus 300 Inkjet 360dpi,150cps	$221
Stylus 800 Inkjet 360dpi,150cps,100sht	$283
ActionLaser 1500 300dpi,6ppm,1mb	$655

CANON

BJ 200e/230,360dpi,49k,7fnts,4ppm	$295/395
BJ10SX,110cps,360dpi,**Portable**	$241
BJC 600 Color,240cps,360dpi,100shtfd	$579
BJC 820 Color,240cps,4ppm,1MB	$1467

OKIDATA

OL 380 dotmatrix,24Pin,23K	$217
OL400e/410elaser 4ppm, 300dpi.	$499/639
OL810, 8ppm, 300dpi	$885
OL830 Plus/850, 8ppm w/ 2MB ps	$1055/1165
OKI ML520 9 pin 64K	$359
OKI ML590/591 24 pin..auto form	$417/561

PANASONIC

KX-P2124, N-Carr, 320cps, 360dpi, 12fnts	$318
KX-P2624	$381
KX-P1624, W-Carr, 192cps, 360dpi, 14fnts	$383
KX-P4410,5ppm,300dpi,28fnts,512k.	$529
KX-P4450i/4430	$967/655

CITIZEN

GSX 145 24Pin wide,160cps,360dpi	$349
GSX200 9pin,Narr/wide.	$168/289
GSX220 24pin/CTZ projectII 3ppm	$179/279
GSX230 24 pin.8 fonts, 270cps	$221
(color option for Citizen 80 col printers	*$45)*
GSX240 24 pin 300cps, 13 fonts	$281
Notebooks CTZPN48/CTZNP-IBM	$284/326

HEWLETT PACKARD

Deskjet 520 300dpi,120cps,16k	$289
Deskjet 500C Color 300dpi,167cps 16k	$385
Deskjet 560C Color,3ppm,300dpi,80k	$553
Deskjet 1200C/ps Color2MB	$1375/2079
HP 4+/4P/4SI/4L	$1375/935/2835/637
4M+/4ML/4MP/4 SiMX	$1875/971/1350/4185

NEC

Pinwriter3300 24pin wide,360dpi,80K	$326
Pinwriter6200 24pin narrow,360dpi,80k	$399
Pinwriter9300 24pin wide.360dpi 333draft	$839
Silentwriter superscript610,6ppm,256k	$471
Silentwriter1097 600dpi,7mb.	$1365

FUJITSU

10/10W Laser,10ppm,1/2mb 14/35fts	$830/942

All printers: Cash basis only and come with the Original Manufacturer's warranty. Please call for lead time. No returns on any printer purchase with this pricing.

MEMORIES, MATH-COs & CPUs

MEMORIES for IBMs

SIMMs

256 x 9 (3 chip)-70NS	$12
1M x 9 (3 chip)-70 Major brand	**$39**
1M x 9 (3 chip)-70NS IBM original	**$37**
1Mx9(2 chip)-70NS No parity	**$34**
1M x 9 (9 chip)-70NSMajor brand	**$42**
4M x 9 (3 chip)-70NS	**$143**
4M x 9 (9 chip)-70NS	**$152**
1M x 9 (3 chip)-60 Major brand	$41
4M x 9 (9 chip)-60NS	$159

ESIMMs(72 Pin)

256x36-70NS	$55
512x36-70NS	$95
1x36-70NS	**$155**
2x36-70NS	**$318**
4x36-70NS	**$646**
1x36-60NS	$158
2x36-60NS	$329
4x36-60NS	$655

SIPPS

256x9 (3 chip)-70NS	$14
1x9 (3 chip)-70NS	$43
1x9 (3 chip)-60NS	$46

DRAMs

1x1-70/80NS	$5.50/5.25
256x1-70/80NS	$1.75/1.60
256x4-70/60NS	$5.75/5.50

MEMORIES for MACs

MACINTOSH

1x2chip-70/80NS	$35/33
1x8chip 70/80NS	$40/37
2x8chip 70/80	$85/80
4x8chip-60/70/80NS.	$137/126/125
16x8chip-70NS	CALL

APPLE UPGRADES

Centras & Quadra 600 series

256x32-70NS	$39
512x32-70NS	$78
1x32-70/80NS	$136/133
2x32-70NS	$278
4x32-70NS	$510
8x32-70NS	$1175

QUADRA 800 SERIES

512x32-60NS	$78
1x32-60NS	$137
2x32-60NS	$275
4x32-60NS	$645
8x32-60NS	$1285

CACHE RAMs

32x8-20	$6.90
64x4-20	$7.50
8x8-20	$3.70
16x4-20	$3.85
64x1-20	$6.70
128x8-25	$38
32x8-15	$7.90
64x4-15	$9.50
8x8-15	$4.10
16x4-15	$4.75
64x1-15	$8.45
128x8-25	$3

CPUs & CPU FANS

INTEL

386 DX33	$40
486 SX25/33	**$76/106**
486 DX 33	**$252**
486 DX 50	**$390**
486 DX2 50	**$273**
486 DX2 66	**$375**
486 DX-4 75/100	$554/665
Pentium 60MHz	$689
Pentium 66MHz	$765
Pentium 90MHz	$924

AMD

386 DX 33/40.	$47/48
486 DX-33	**$181**
486 DX 40	**$212**
486 DX2 50	**$234**
486 DX2 66	**$260**

CYRIX/TI

486 DLC 33/40	$69/84
486 DX 33/40	**$154/174**
486 DX2-50/DX50	**$192/307**

CPU Fans

486 heat sink and fan	**$7.95**
Pentium 60,66/90	**$12/15**

MATH-COPROCESSORS

INTEL

80387 SX 16/20/25.	$45/64/75
80387 DX 16/20/25/33	$35/40/45/80

Overdrives - call for latest prices

IIT

3C87SX-16/20/25	$39
3C87SX-33	$39
3C87DX-25/33/40.	$39

CYRIX

83S87SX 25	$39
83S87SX 33	$39
83D87-33	$41
83D87-40	$41

WEITEK

4167-25	$265
4167-33	$425

LASER EXT. MEMORIES

HEWLETT-PACKARD

HP IIP, IIP+,III,IIID,IIIP	1/2/3/4MB	$75/114/155195
HP II, IID	2/4MB	$124/199
HP IIISi	1/4MB	$76/204
HP IV	4/8MB	$165/365
Deskjet 500, 500C, 550C	256K	$88

PANASONIC

KXP 4410/20/30	1/2/3/4MB	$98/148/175/215
KXP 4450	1MB	$137
KXP 4455	2MB	$164

OKIDATA

OKI 400	1/2MB	$98/119
OKI 800/820	2/4MB	$123/193
OKI 810	1/2MB	$111/189

Special Terms and Conditions for this Section: CPU and Memory prices change on a daily basis; please call for the latest prices. These products when bought without systems may come with a shorter warranty - please inquire. We do not stock many of the above products - please call for availability.

SOFTWARES

For Networking, Communications, Tape Storage Drivers, Networking Drivers, Multi-Media and Speciality Softwares also look in the corresponding sections.

UTILITIES

Norton Utilities V 7.0/Anti-Virus v2.1	$116/89
QEMM 386 V7 0	$69
AfterDark V2.0 WIN	$29
PC Tools V 8 0A	$57
Auto-Doubler/Disk-Doubler	$68/61
LapLink V5.0 FOR NETWARE	$74
MickyMouse/StarTrek Screen Saver	$39

DESKTOP PUBLISHING & GRAPHICS

Corel Draw V4.0/UPGRADE	$383/218
Pagemaker/WIN V5.0	$554
Harvard Graphics For Windows	$248
Norton Desktop WIN V2.2	$115
Micrographx Graphics Works	$158

DATABASES

Accesss for Windows.	$145
CA-Clipper V5.2	$512
DBASE IV V2.0	$513
FoxPro For Win/DOS 2.5 Upgrade.	$300/305
FoxPro LAN.	$call
Paradox V4.0/WIN	$524/145
Q & A 4.0	$243
Superbase 2.0 WIN	$345
LOTUS SMARTSUITE	$448
Gupta SQL router/SQL server	$166
Gupta SQL for DOS	$2597
Gupta SQL gateway for netware	$3252

ACCOUNTING/BUSINESS

CA-Accpac BPI Integrated	$148
CA-Acc. Simply Accounting DOS	$79
DAC Easy Accounting/Payroll 4.3	$94
Works for WIN 2.0	$129
MS Project 3.0 for WIN	$425
MS Office 4.2 (Word,Excel,Pwrpoint,Mail)	$475

SPREADSHEETS

LOTUS WORK V3.0	$99
MS Excel V5.0	$292
MS Works for WIN.	$123
Quattro Pro V 5 0 WIN/DOS	$54

WORD PROCESSING AND GRAPHICS

AMI Pro 3.1	$240
Grammatik	$73
Professional Write V 2.2	$159
MS Word 6.0 for DOS/WIN	$305/299
Word Perfect 6.0 for DOS/WIN	$296/294
WordStar 7.0	$264

COMMUNICATIONS

Procomm Plus 2.01/WIN	$70 /97
WinFax Pro V 3.0 for WIN.	$99
Norton PC Anywhere 4.5 Host/Rem	$65/86
CrossTalk for WIN	$129

PROGRAMMING LANGUAGES & OPERATING SYSTEMS

M.S. DOS 6.2/UPGRADE	**$48**
M.S. OEM Windows 3.11 for PC system	**$56**
M.S. Windows V 3.11 Original	**$89**
DESQView V1.1	$163
Windows NT 3.1 /UPGRADE	$314/278

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Prices given in bold are usual stock items, prices not in bold are special order items and require a 20% deposit, are not returnable, and take 2-3 days lead time.

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HARD DRIVES	HARD DRIVES	HARD DRIVES	HARD DRIVES	NETWORKING	MULTIMEDIA
CONNER 420IDE $246	MAXTOR 540 IDE/SCSI 8.5 MSEC $363/418	QUANTUM 1.08GB 9.5 MSEC/5 YEAR $649	QUANTUM 2.1 GB 10MSEC/5YEARWARNTY $1.199	16BIT NE2000 COMP COAX/TP.....$29 16 BIT NE2000COMP COMBO.....$39 INTEL 10BT FLASH..............$99 8 PORT TP HUB W/AUI.........$159	8BIT SOUND C/KIT.......$39/59 MITSUMI 1X CD ROM..........$79 MITSUMI/PANASONIC 2X INT..$134 TOSHIBA 2X 3401 INT.....$299

COMMUNICATIONS

FAX-MODEMs

PONY 902Z 96/24 Fax (Send)/Mod Int	**$27**
PONY 992Z 96/24 Fax/Modem	**$40**
PONY 992NZ 96/24 F/M, v.42 bis Enh	**$55**
PONY 1414IZ 14.4 F/M,.32/.42 w/Bitfax Int	**$82**
Pony 14 4 F/M 32/ 42 Int w/Voice prm	$126
PONY 992PZ Pocket 96/24 F/M, 32/ 42	$63
PONY 1414PZ Pocket 144 F/M, v 32, v 42	$184
PONY 992MG PCMCIA 96/24 F/M v 42	$132
PONY 1414MG PCMCIA144/144 F/M v 42	$244

AT&T Paradyne

DataPort 14 4 Fax V 32bis External	$175
Comsphere 19 2/14 4 Fax v 42bis Ext	$575
Keep in Touch PCMCIA 14 4 S/R Internal	$299

US ROBOTICS

9600 Sport Mod/fax V.32 V.42bis I/E	$110/133
14.4 Sport Mod V 32bis V 42bis I/E	$113/135
14,4 Sport Mod/Fax V.32b V.42b I/E	**$117/141**
14 4 Mac&FAX Ext Mod/fax	$165
14,400 HST Courier Dual V 32bis	$742
Modem Sharing Single/Dual Kit	$548/964
World Port PCMCIA 14 4 Mod/fax Int	$305

INTEL

14.4 Fax/Modem Winfax Int./Ext	**$119/138**
Satisfaction 200/300Fax Int.	136/125
Satisfaction 400 14 4 S/RFax Int/Ext	$295/329
14 4 PCMCIA S/R Internal	$259
Net SatisFAXtion v2 5 20 User	$745
Wireless modem for lan based server	$755

HAYES

Accura 14 4 F/M 32/ 42 Int/Ext	$155/165
Optima 14 4 F/M 42 Int/Ext	$372/372
Optima 14 4 F/M PCMCIA	$285
Optima 14 4 F/M Pocket	$335

ZYXEL

U-1496B 16.8/14.4 VoiceFax SW,S/R Int	$318
U-1496B+19.2/14.4 Voice Fax SW,S/R Int	$429
U-1496E 16.8/14 4 VFax SW,S/R LED Ext.	$298
U-1496E+ 19.2/14 4VFaxSW,S/R LED Ext	$419
U-1496+ 19.2/14 4VFaxSW,S/R LCD Ext.	$625
U-1496+19.2/14 4 S/R LCD MAC Ext	$639
U-1496E+ 19.2/14 4 S/R LED MAC Ext	$429

PRACTICAL PERIPHERALS

14 4 Fax/Modem S/R Internal	$164
14 4 Fax/Modem S/R External	$180

Miscellaneous

National Tyin 2000 96/24 Int w/voice	$125
Complete Comm EZ 96/24 Int w/voice	$150
Supra 14 4 F/M Int/Ext	$125/135
Supra Mac 14 4 Ext	$159
Megahertz 14 4 PCMCIA Type3	$298
Motorola 14 4 Int/Ext	$

WHITE PAPER FAX

Converts any Laser Printer to a White Paper Fax Machine, avoid use of expensive ribbons 20 page Memory Ideal for heavy through-put

.......$249

NETWORKING PRODUCTS & SERVICES

ETHERNET Adapters

NE 2000 Plus Comp 16bit Coax/10BT	**$33/34**
NE2000 Plus Comp Combo soft&hard config	**$41**
D-Link 16 Bit,SoftConfig 10BT 1/6 Pack	$70/377
Intel EtherExpress 16/5pk/20pk	**$104/479/1815**
Intel EtherExpress 16 MCA C/16 MCA TP	$171
Intel EtherExpress 32 EISA/Flash 32C	$419/239
Intel EtherExpFlas TP/C 5/20pk	$112/585/2059
SMC Ethcard 16 UltCx/6 Pk/24pk	$109/574/2149
SMCEthcard+IA for MCA/TP	$179
SMCEthcard+Elite16 Cx/TP 1/6/24	$119/615/2289
3 Com 503 Etherlink II 16 Bit Coax/TP	**$159/169**
3 Com 507 Ethlink II 16 Bit Coax/TP	**$289/299**
3 Com 509 Ethlink III Coax/5Pk	$119/505
3 Com 509 Ethlink III Combo/5/20	$145/559/2199
3 Com 529/579 EISA Coax/10 BT/5pk	$229/959
EagleNE2000 Plus /5Pk	$89/385
EagleEP2000 Plus/5pk	$92/405
Asante Etherpack2000+ Coax/10 BT	$129
Microdyne NE2000 Plus	$109/94
HP Ethertwist PCLink/6pk	$159/759

ARCNET

16bIT Star/bus Topology-combo	$65
4Port Passive Hub	$15
8 Port Coax stackable Active Hub	$139

ADAPTERS for TOKEN RING

Intel Token Express 16/4 ISA/MCA.	$429/469
SMC Token Ring Adapter 16/4	$345
3 Com Tokenlink III 16/4 ISA/EISA	$455/635
IBM Token Ring Adap II	$289

POCKET LAN ADAPTERS for Notebooks

Advanced LAN Net Coax/10BT	$129
XIRCOM PE3 10B2/BT/BC	$274/274/299
XIRCOM 16/4 MBNS Tokenring w/Type 1Bnc	$525
Xircom 16/4 Tokenring w/Type 3Coax	$525
DLINK DE-600 Softconfig Coax/10BT	$172

PCMCIA ADADAPTERS for PalmTops

DLink DE-650 Coax/TP	$191/195
NATIONAL NE4100 COAX/10 BASE T	$214
XIRCOM Credit Card BNC/RJ-45	$269
XIRCOM Crdit Card Courso	$299
GVC Adapter	$137

CABLES & CONNECTORS

ETHERNET RG58 or RJ45 10BaseT

Readymade w/Connectors 10'/25'/50'	$4/6/9
RJ45 10BT patch cabnles 7'/25'	$4/6
Token Ring patch cable	$23
RG58 Bulk SPOOL	$80
RJ45 10BT 1000' level4/5	$119/130
BNC 50 Ohm Terminators/Crimp-ON/Barrel	$1 49
BNC T-Connectors	$1 99

Concentrators

CeLan 2-Port BNC/AVI Repeater	$235
Ce-Lan 4-Port BNC/AVI Repeater	$445
Allied Telesis 4-Port Repeater 2AVI,2BNC	$750
Allied Telesis,4-Port,8BNC 1AVI	$699
Allied Telesis,8 -Port,8 BNC 1AVI	$785
Allied Telesis-3008 Multi-port 8BNC,1AVI	$1189

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Hubs

CeLan 8 Port 10 BT w/BNC Cascade port	**$168**
CeLan16 Port 10BT w/AUI exp. port	**$385**
CeLan 16 Port 10BT managable	$439
CeLan 16 Port Intelligent w/SNMP	$789
Allied Telesis 12 Port RJ45,1AUI	$459
Asante 8 Port Hub,8RJ45,1BNC	$249
Asante 12 Ports,12tp,1BNC Thin,1 AUI Thick	$475
Asante 1701 Smart 12Ports/SNMP	$1019
Microdyne 18 port 10 Base T5000 series	$619
D-Link 12 Port 10 BaseT	$399
D-link DE-1500 w/SNMP	$869
D-link K1032 32Port w/SNMP	$1199
Intel EE 12 Port 10 BT Hub Int w/Harmonica	$634
Intel EE 12 Port Hub Int EISA w/Harmonica	$699
SMC 8 Port Concentrator/12 Ports TP	$325/599
Synoptics 2800 A 16 Port w/AVI	$699
Synoptics 2803 16 Port w/AVI	$749
Synoptics 2804 16 Port w/Fiber Optics	$951
3 Com Link Builder 3C621 12 Port	$729
3 Com Link Builder TR 3C510180/82	$1751/3599

BRIDGES

Allied Telesis local Ethernet Bridge	$1645
3 Com 802C NetBuilder local Ethernet	$3399
3Com 750 NetBuilder Token Ring local	$4714
3Com 5823C NetBuilder Remote	$5319
Synoptics 3323S Ether Local w/AVI	$2353
Synoptics 3522 Token Ring	$5319
Novell Multiprotocol Router v 2 0	$669

PRINTER SHARING

Ethernet Print Servers

INTEL

Ethernet NetPort II for Coax,10BaseT	$385/379
Token Ring NetPort with DB9 Connector	$529
Netport ExpressXL Coax, UTP, 10BaseT	$624

(Compact design for easy connectivity on on versions of Novell Netware Comes with either 1S/1P or 2P ports)

OTHERS

Eagle NPE400 Parallel Port RJ-45/Coax (1P)	$364
XIRCOM Pocket Ethernet RJ45/Coax	$305/289

(Allows a Pocket LAN Adapter and a Parallel Printer to be attached to one LPT Port)

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Simple AUTO-SWITCHING

2 Computers to 1 printer Electronics	**$24**
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4 Computers to 1 Printer Bi-directional S/P	$69/61
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PrinterNET Transm/Rec. kit (w/25')	$69
PrinterNET Starter kit	$155

(!t can connect 16 computers to 6 printers)

ModularLink Transm DB-25(w/25')	$40
ModularLink Receiver Cen	$45
ModularLink Starter Kit	$106

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NOVELL NETWARE

Ver 3.12 5/10/25/50 User	$613/1459/1935/2523
Ver 3.12 100/250 User	$3783/6667
Ver4 01 5/10 User	$843/1677
Ver4 01 25/50 User	$2355/2971
Ver4 01 100/250 User	$4701/9143
Ver4 01 500/1000 User	$15375/27932
Netware Personal 2User kit w/2 coax cards	$179
Netware Lite v1 1 w/Win utilities	$72
Netware Lite v1 1 w/Win Util&Dr DOS	$90
Dr DOS 6 0	$72

(Novel's prices are changing frequently, so please call for the latest price changes)

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by CC:MAIL

Platform Packs: *(For connectivity on all LANs and across all LAN Bridges and Gateways For support of any combination of Server-to-Server, LAN-to-LAN, and Remote Workstation-to-LAN messaging One Platform pack is required for configuring any system)*

CC Mail DOS 4 2/Win 2 0/Unix 1 0	$199/325/345
CC.Mail Macintosh 2.0/OS2 3.2	$329/345

User Packs: *(For adding users to the Platform Pack)*

CC Mail 10/25/100 user v4 0	$229/549/2097

Remote Users: *(For connecting one remote user to any CC Mail user net via Public Telephone Lines)*

CC:Mail Remote for DOS3 3 or Mac 2 01	$199

Gateways: *(For exchange of messages with other CC.Mail Post Offices on the same LAN or Bridged LANs)*

CC Mail Router v4 0/Fax 1 2	$839/1298

PEER-TO-PEER NETWORKS

ASA

(2) copies of Novell lite, (2) NE 2000C Cards, Cables, Terminators etc	$249

WINDOWS FOR WORKGROUP

Add-On 1 user kit w/Win3.1	**$149**
Add-On 1 user w/o Win 3.1	**$48**
Multi-Unit 20 Node/Server	$734
Windows NT Advanced server	$949
Windows NT v3.1 regular	$329

ARTISOFT PRODUCTS

AE-2 Starter Kit v5.0 DOS/Win	**$454/525**
AE-3 Starter Kit v5.0 DOS/Win	**$525/545**
AE-2/3 16 BitAdapter w/lantastic soft	$192/234
Lantastic 2MBPS Kit 5 0	$339
Lantastic v5 0 AI DOS 1/6/12pk	$81/479/959
Lantastic v5 0 AI Win 1/6/12pk	$93/549/1099
Lantastic for TCP/IP	$199
Lantastic for MAC	$524
Noderunner 2000C/T 1/6pk	$174/975
Noderunner 2000M/TC for PS/2	$259

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APC-BK250, 7 min, 386SX, ws	**$102**
APC-BK400, 10 min, 286, 386SX, ws	**$158**
APC-BK600, 15 min, 386 486 FS.	$259
APC-BK900/1250, 15 min, Multi FSs.	$381/561
Power Doctor/Call UPS	$69/102

SMART UPS (ON-LINE/AUTO BACKUP)

APC 400, 10 min, 286, 386 FS/WS.	$288
APC 600 15 min, 386, 486 FS/WS.	$335
APC 900, 15 min CAD/CAM WS/FS	$546
APC 1250, 15 min, Multiple FSs.	$877
APC 2000, 20 min, Mini Computers.	$1134
Matrix UPS 3000 VA, Multi-server	$2869
SERENA 5 25" 300VA UPS mounts in PC	$call

INTERFACE KITS/SMART MONITORING

Power Chute Plus for Novell/Unix,Xen.	$64/98
UPS Monitoring Board for Novell.	$61

ASAコンピュータ

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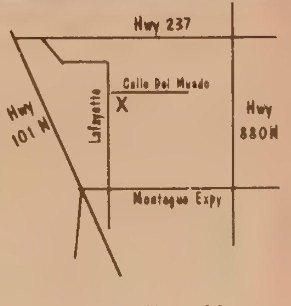

Santa Clara, CA

TERMS AND CONDITIONS

COD, FOB Santa Clara, CA. Credit terms are available on approval Manufacturer's warranty on parts varies Three years limited warranty on systems assembly labor only Prices are subject to change Prices in () or marked with a "*" are on cash basis only Prices marked with "**" are clearance items & available while quantities last, regular prices for these items may be different

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• 80486DX2-50 MHz	$269
• 80486DX2-66 MHz	359
• 80486SX-25 MHz	79
• 80486SX-33 MHz	108

A.M.D. CPU CHIPS

• 80486DX-40 MHz	$210
• 80486-2-50 MHz	245
• 80486-2-66 MHz	269

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4x8-70	135
4x9-70	142
4x9-80	140
4x9-60	144

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1x8-100 8 Chip	$39
1x8-80 2 Chip	36
1x8-70 2 Chip	37
1x8-80/70 8 Chip	37
2x8-80/70	89
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Mac IIfx 4/16 MB Kit	CALL
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NEW 72 PIN SIMM for MAC LCII & CENTRIS	CALL

72 PIN SIMMS (36 BIT)

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512Kx36-70	99
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1x36-60	162
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DRAMS

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256x1-120	2.00
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1MBx1-70	5.99
1MBx1-80/60	5.99
SOJ	CALL

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64x4-10/12 Page, 18pin	$6.00
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256x4 Video Page 28pin TC524256Z-70	10
256x4 Video 28pin TC524256Z-60	12
1x4-80/70 Page 20pin	44
1x4-80/70 Page 20pin DIPP	48

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32Kx8-20	$5.95
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8Kx8-20	3.75
8Kx8-15	4.00
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64x1-15	8.50
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287-10	$39
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287XL Intel Tube	49
387SL Intel Tube	65
387SX-16/20	45/64
387SX-25 Cyrix	59
387SX-33 ULSI	49
387DX-20 Intel Tube	35
387DX-25 Intel Tube	35
387DX-33 Intel Tube	65
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4167-25/33 Weitek	200/375

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Price includes Memory, Board & Installation Instructions

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4019/4019E 1/2/3.5 MB	$99/139/189
4029 (All Model) 4 MB	189

EPSON LASER

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7000-1/2/3 MB	125/149/189
Action LaserII-2/3/5 MB	159/205/299

HP LASER

HPII/IID 2/4 MB Board	$120/215
HP 4/4M 4/8MB	169/309
HP IIP,IIP+,III,IIID,IIIP 1/2/3/4	99/135/219/215
IIsi 4/8 MB	179/299
DeskJet 500/500c 550C 256K	89
Design Jet Plotter 4 MB	155

PANASONIC LASER

KXP4410/KXP4430 1/2/3/4 MB	$119/150/175/225
KXP4420/4450/4451 1/2/3/4 MB	119/145/159/225
KXP4450 1 MB	119
KXP4455 2 MB	139

OKI LASER

OL400 1/2 MB Board	$109/129
OL800/820 2/4 MB Board	129/189
OL810 2/3/4 MB Board	159/189/229

QMS LASER

PS 410 2/3/4 MB	$119/165/189
PS 860, 1700 1/4/8 MB	89/133/179
PS 815, 825, 815MR, 2/4/6	168/232/295

SHARP LASER

9500PS 1 MB	$75
JX-9500/9700 1/1.5/2.5/4	110/135/188/344

OTHERS

Apple Laserwriter II/IINT/IINTX 4 MB	$235
Brother HL-4 2/3/4 MB	119/165/189
Brother HL-8E V 1/2 MB	99/139
Compaq Pagemarq 15 & 20 1/4/8	79/139/266
Kyocera F800, F800Am F800T 2/4	95/137
NEC Silentwriter 90/290	109/124
NEC Silentwriter 95 2 MB	109
TI Microlaser 1 MB	98
Packard Bell Video Memory 1 MB	39

DELL MEMORY

Model		P/N	
433P,33P,325P,33D,325D			
	1 MB	310-2505	$89
	4 MB	310-2507	169
433TE, 425TE & Powerline Workstation			
	2 MB	310-2466	$129
	4 MB	310-2467	189
	8 MB	310-2468	349
	16 MB	310-2469	669
Power Desktop 486D, D/33, D/25, D/20, D/66			
	1 MB	310-2505	89
	4 MB	310-2507	169
	16 MB	310-2625	669
OTHER MODELS			CALL

MEMORY BOARDS

• RAMpAT 16 Bit	$85
• RAMpAT Plus	125
• SIMMply RAM for PS/1 16 Bit	149
• SIMMply RAM	159

TEAC FLOPPY DRIVES

1.44 MB	$39
1.2 MB	49
Dual Floppy 1.2/1.44	85
Heat Sink w/Fan For 486's/Pentium	10/18

COMPAQ MEMORY

Model		P/N	
LTE 286	1 MB	117081-001	$89
	2 MB	117081-002	125
	4 MB	117081-003	219
SLT 286	1/4 MB	110237-001	99/259
LTE 386S/20	2 MB	12125-001	129
	4 MB	121125-002	225
Contura Lite 20/25			
	2 MB	129769-001	125
	4 MB	129769-002	245
	8 MB	129769-003	395
Portable 386	1 MB	107651-001	125
	4 MB	107653-001	310
Portable III	2 MB	10-7332-001	125
	EBD	167811-001	225
SLT 386	2 MB	118304-001	135
	4 MB	118305-001	225
Deskpro 386S (E. Board)			
	4 MB	11364-001	285
	4 MB	112534-001	189
Deskpro 386/33L, 486/33L, 50/25			
	2 MB	115144-001	105
	8 MB	116561-001	365
	32 MB	116568-001	1475
Deskpro 386/20e, 25e (E. Board)			
	4 MB	113645-001	285
Deskpro 386/20,20e,25e			
	4 MB	113132-001	199
Deskpro 286N, 386N, 386SX/20, 386/25M, 486/33M, 486S/25M, 486S/16M			
	2 MB	118689-001	189
	4 MB	118690-001	345
	8 MB	128877-001	395
Deskpro 486/33L, 486/50L, 386/33L			CALL
Prolinea 3/255 & 3/252S			
	2 MB	141738-001	135
	8 MB	141742-001	315
Prolinea 4/33	2 MB	141682-001	125
	4 MB	141684-001	189
	8 MB	141685-001	345
Other Models			CALL

TOSHIBA MEMORY

T8500, T5200	2/8MB	$129/449
T5100, T3100, T1600	2 MB	139
T3100SX	2/4 MB	129/159
T3200SX, SXC	2/4 MB	125/199
T4400SX, SXC, T6400	2/4 MB	135/249
T4500/4600/4800, T1900/1910, T1950/C 3.3 Volts	8/16 MB	429/769
T3300SL	2/4/6 MB	135/210/299
T3100	2 MB	135
T2200SX, SXE, T1000LE	2/4/8MB	135/210/379
T1800 Satelite	2/4/8 MB	135/210/379

NEC MEMORY

Prospeed 286, 386SX/16	1/2/4 MB	$125/185/269
Prospeed 386	2/4 MB	189/475
Prospeed SX/20	1/4 MB	125/249
Powermate 386/25S	2/8MB	139/369
Powermate 486/25E, 486/33I	2/8 MB	135/365
Powermate Express Series	1/4/16 MB	135/225/689
Other Models		CALL

NOTEBOOK MEMORY

AMIGA 4000	4/8 MB	169/310
Altima LSX	2/4 MB	165/249
Avanti	2/4 MB	160/340
AST Premium Exec	1/4 MB	119/245
AST Power Exec 3/25	4/8/16 MB	CALL
Compaq Contura Lite 20/25	2/4/8 MB	135/245/395
Chaplet Notebook	2/4 MB	155/249
Chicony 386SX	4 MB	198
Chicony 386SL/25	2/4 MB	149/229
DECPC 320P	2/4/6 MB	195/269/389
DELL 320N &212N	1/2 MB	99/125
DELL 320N, NC	2 MB	125
DELL 325N, NC	2 MB	179
DELL NL25, NL20	2 MB	179
Epson NBS3	1/4 MB	98/225
Everex Tempo LX	2 MB	135
HP 95LX	1/2 MB	159/279
IBM L40SX, N33/SX	2/4/8 MB	99/189/389
IBM N51SX & SLC	1/4/8 MB	99/155/299
IBM PS/2 N45 SI	2 MB	179
MAC PB 160, 180	6/10 MB	219/425
MAC PB 140, 170	2/4/6 MB	89/175/229
MAC PB 100	2/4/6 MB	89/179/239
Magnavox Metalis 386SX	4 MB	199
NEC Ultralite 286F	1/4 MB	99/199
Packard Bell 386SX	1/4 MB	99/229
Panasonic CF 170/270/370	1/2 MB	65/99
Sharp PC 8501	2 MB	125
Sharp 678/6881	2 MB	129
Sampo NB SX/26, SX/25	2/4 MB	145/225
TI Travelmate 2000	1 MB	110
TI Travelmate 3000	2 MB	135
TI Travelmate 4000	4 MB	229
Zenith Turbosport 386 E	1/4 MB	125/325
Zenith Supersport SX	2 MB	189
Zenith Mastersport	2 MB	189

IBM PS/2 & PS/1 MEMORY

PS/1 286/386SX	2/4 MB	$135/225
PS/1 Consultant Essential/Expert	1/2/4/8 MB	79/99/189/320
386 Valuepoint	2/4/8 MB	99/179/325
486 Valuepoint	4/16 MB	189/595
PS/2 30-286	2 MB	99
50Z, 55SX, 65SX, 70	2/4 MB	99/179
40SX, 35SX,35SL	2/4 MB	99/179
70A21, A61, 121	2 MB	135
80-11, 121, 311	4 MB	215
95,90,P75, PS/1 Pro	2/4/8 MB	135/129/335
16 Bit Exp Bd For 50, 50Z, 60, 65SX	0K	179
32 Bit Exp Board for all 70 & 80 models	0K	189
RISC 6000	16/32/64 MB	745/1490/2890
Other Models		CALL

AST MEMORY

Bravo 3/33(LC) 325S	2/8 MB	$120/325
Bravo 486/25 & 4/33	2/8 MB	135/345
Bravo 486LC	4/8/16 MB	189/325/595
Cupid-32 Board	0K	239
Premium 386C	4 MB	189
Premium SE 450	4 MB	189
Premium 386/25, SX,33,486/25	1 MB	85
Premium II 386, 486	1/4 MB	85/189
Executive Notebook	4 MB	189
Other Models		CALL

SUN MEMORY

SPARC SLC	4 MB	$189
3/60, 80, 4/40, 60, 65	4/16 MB	189/795
SPARC 1 &1+, 1Pc	4/16 MB	189/795
SPARC 10	16/64 MB	715/CALL
SUN Classic	16 MB	715
SPARC Server 630np	64 MB	2285
SUN IPX, ELC	4/16 MB	189/795
SPARC II	16 MB	795
Other Models		CALL

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APPLE

Desktops

Macintosh Classic	1MB Exp Board	M6361ll-A	CALL
	2MB Kit	M0219LL-A	CALL
Macintosh Color Classic	2MB Kit	M0219	CALL
Macintosh Classic II,LC,LCII	4MB Kit	N/A	CALL
	8MB Kit	N/A	CALL
Macintosh Plus, SE	2MB Kit	M0219LL-A	CALL
	4MB Kit	N/A	CALL
Macintosh II, IIx	4MB Kit	N/A	CALL
	16MB Kit	N/A	CALL
Macintosh IIFX	4MB Kit	N/A	CALL
Macintosh SE30	4MB Kit	N/A	CALL
	16MB Kit	N/A	CALL
Macintosh IIcx, IIvx IIvi	4MB Kit	N/A	CALL
	8MB Kit	M0513LL/A	CALL
	16 MB Kit	N/A	CALL
	32 MB Kit	N/A	CALL
	64 MB Kit	N/A	CALL
Macintosh IIci, IIsi	4MB Kit	M0292LL-A	CALL
	8MB Kit	M0513ll-A	CALL
	16MB Kit	N/A	CALL
	32 MB Kit	N/A	CALL
	64MB Kit	N/A	CALL
Macintosh LC III	4MB Module	N/A	CALL
LC475, LC520	8MB Module	N/A	CALL
	16MB Module	N/A	CALL
Performa 200	4MB Kit	N/A	CALL
	8MB Kit	N/A	CALL
Performa 400 Series	2MB Kit	M0219ll/A	CALL
405, 410, 430	4MB Kit	N/A	CALL
	8MB Kit	N/A	CALL
Performa 450,460,466,467	4MB Module	M15077LL/A	CALL
475, 476, 550	8MB Module	M1508LL/A	CALL
	16MB Module	N/A	CALL
	32MB Module	N/A	CALL
Performa 600	4MB Kit	MO292LL/A	CALL

Systems

Centris 610, 650	4MB Module	M1507LL/A	CALL
Quadra 610, 650	8MB Module	M1508LL/A	CALL
	16MB Module	N/A	CALL
Quadra 605/800	4MB Module	N/A	CALL
Quadra 840AV	8MB Module	N/A	CALL
	16MB Module	N/A	CALL
NEW!	32MB Module	N/A	CALL
Centris 660AV	8MB Module	N/A	CALL
Quadra 660AV	16MB Module	N/A	CALL
NEW!	32MB Module	N/A	CALL
Quadra 700, 900, 950	4MB Kit	M5952LL-A	CALL
		M0292LL-A	CALL
	16MB Kit	N/A	CALL
	32MB Kit	N/A	CALL
	64MB Kit	N/A	CALL
Workgroup Server 60	4MB Module	N/A	CALL
Workgroup Server 80	8MB Module	N/A	CALL
NEW!	16MB Module	N/A	CALL
Power Macintosh	8MB Module	(2)M1507LL/A	CALL
6100/60, 6100/60AV	16MB Module	M2838LL/A	CALL
7100/66, 7100/66AV	32MB Module	M2839LL/A	CALL
8100/80, 8100/80AV	64MB Module	N/A	CALL

Printers

PowerBook 100,140	2MB Card	M1032LL/A	CALL
	4MB Card	M1033LL/A	CALL
	6MB Card	N/A	CALL
PowerBook 145, 170	4MB Card	M4664LL/A	CALL
	6MB Card	N/A	CALL
PowerBook 145B	4MB Card	M4664LL/A	CALL
PowerBook 160, 165, 180	4MB Card	M4664LL/A	CALL
	6MB Card	M4664LL/A	CALL
	8MB Card	N/A	CALL
	10MB Card	N/A	CALL
PowerBook 165C, 180C	4MB Card	M4664LL/A	CALL
	6MB Card	N/A	CALL
	8MB Card	N/A	CALL
	10MB Card	N/A	CALL
PowerBook Duo 210, 230	4MB Card	M4184LL/A	CALL
	8MB Card	M4185LL/A	CALL
PowerBook Duo 250	4MB Card	M4184LL/A	CALL
NEW!	8MB Card	M4185LL/A	CALL
	20MB Card	N/A	CALL
PowerBook Duo 270C	4MB Card	M4184LL/A	CALL
NEW!	8MB Card	M4185LL/A	CALL
	20MB Card	N/A	CALL
	28MB Card	N/A	CALL
Newton Message Pad	1MB SRAM Card	H0028LL/A	CALL
NEW!	2MB SRAM Card	N/A	CALL
	4MB SRAM Card	N/A	CALL
	8MB SRAM Card	N/A	CALL
	16MB SRAM Card	N/A	CALL

Printers

LaserWriter II, IINTX	4MB Kit	M6006	CALL
IINTX-J			
LaserWriter IIf, IIg	4MB Kit	M5952LL/A	CALL
LaserWriter Pro 600,630	4MB Module	N/A	CALL
	16MB Module	N/A	CALL
LaserWriter Select 310,360	1MB Module	M2093G/A	CALL
	4MB Module	M2094G/A	CALL
LaserWriter Pro 810	4MB Board	M1442G/A	CALL
NEW!	8MB Board	M1443G/A	CALL

AST

Desktops

286 Rampage Plus	0MB Exp Board	N/A	CALL
Advantage Plus 486 Series	4MB Kit	500510-008	CALL
486DX/33	4MB Kit	501168-001	CALL
486DX2-50	8MB Kit	500824-001	CALL
486DX2-66		5001168-002	CALL
Advantage 386SX/20,25	2MB Kit	500962-001	CALL
Advantage Pro 386SX/25	500891-005	CALL	
	8MB Kit	500962-002	CALL
		500891-006	CALL
Advantage Pro	2MB Kit	500987-001	CALL
486DX/33		500891-007	CALL
486SX/25	4MB Module	500987-002	CALL
		500891-008	CALL
	8MB Module	500987-003	CALL
	16MB Module	500987-004	CALL
	32MB Kit	500987-005	CALL
Bravo 286/8,386SX/16	2MB Kit	500510-002	CALL
		500710-004	CALL
Bravo 286/16,386SX/20	2MB Kit	500510-002	CALL
386SX/25 (2,8MB only)	500710-004	CALL	
	8MB Kit	500824-001	CALL
		501168-002	CALL
Bravo LC4/25s	2MB Kit	500987-001	CALL
4/33		500891-007	CALL
4/33s	4MB Module	500987-002	CALL
4/50d	500891-008	CALL	
4/66d	8MB Kit	500987-003	CALL
Bravo 486 LP Series	16MB Module	500987-004	CALL
Bravo 486/66 MT	32MB Kit	500987-005	CALL
Premium 386C (4MB only)	4MB Kit	500510-008	CALL
		501168-001	CALL

Desktops

Premmia 4/33, 4/33s	4MB Kit	501159-001	CALL
4/50d, 4/66d	8MB Kit	501159-003	CALL
	16MB Kit	501159-004	CALL
	32MB Kit	501159-004	CALL
	64MB Kit	501159-005	CALL

Notebooks

PowerExec 4/25SL	4MB Module	501166-001	CALL
color, ColorPlus	16MB Module	501166-003	CALL
PowerExec 486	4MB Module	501318-001	CALL
color, ColorPlus	16MB Module	501318-002	CALL
PowerExec 486	4MB Module	500984-003	CALL
Special Edition	16MB Module	500984-003	CALL
PowerExec 3/33,3/25SL	2MB Module	500984-004	CALL
PowerExec EL	4MB Module	500984-001	CALL
	8MB Module	500984-002	CALL
	16MB Module	500984-003	CALL

PremiumExec

286/12	1MB Module	500814-001	CALL
386sx/20	4MB Module	500814-003	CALL
386SX/25 (4MBonly)		500814-004	CALL
386SX/25C (4MB only)			

AT&T

Printers

AT&T 593	0MB Exp Board	N/A	CALL
	2MB Exp Board	N/A	CALL
	4MB Exp Board	N/A	CALL

BROTHER

Printers

HL-4,4PS,4V,4Ve	0MB Board	N/A	CALL
	1MB Exp Board	MB-410	CALL
	2MB Exp Board	MB-420	CALL
	4MB Board	MB-440	CALL
HL-6 Series	0MB Exp Board	MB-600	CALL
NEW!	2MB Exp Board	N/A	CALL
	4MB Exp Board	N/A	CALL
HL-8,8e,8v	0MB Exp Board	N/A	CALL
	1MB Exp Board	MB-810	CALL
	2MB Board	MB-820	CALL
HL-10V,10DV	2MB Exp Board	MB-1020	CALL
10PS, 10DPS	4MB Board	MB-1040	CALL
HL-10H	1MB Module	MS-1	CALL
NEW!	2MB Module	MS-2	CALL
	4MB Module	MS-4	CALL
	8MB Module	MS-8	CALL

CANON

Notebooks

NoteJet 486	2MB Module	N/A	CALL
(BN-22)	4MB Module	N/A	CALL
NEW!	8MB Module	N/A	CALL

Printers

LBP-4, 4 Plus, 4 Lite	1MB Exp Board	S63-2230	CALL
	2MB Board	N/A	CALL
LBP-4sx	0MB Exp Board	N/A	CALL
	1MB Exp Board	R03-0010-000	CALL
	2MB Board	R03-0020-000	CALL
LBP-8II,8IIR, 8IIT	0MB Board	N/A	CALL
	0MB Board	N/A	CALL
	1MB Exp Board	S63-1300	CALL
	2MB Exp Board	S63-1880	CALL
	4MB Board	N/A	CALL
LPB-8SX	0MB Exp Board	N/A	CALL
	1MB Exp Board	R03-0030-000	CALL
	2MB Board	N/A	CALL
LBP-8III,8III,8IIIR	1MB Exp Board	S63-2340	CALL
	2MB Exp Board	S63-2350	CALL
	3MB Board	S63-2360	CALL
LBP-8IV,LBP-4U	1MB Module	N/A	CALL
	4MB Module	N/A	CALL
	8MB Module	N/A	CALL
LBP-430	1MB Module	R73-3009001	CALL
	4MB Module	R73-3017001	CALL
LBP-860	1MB Module	N/A	CALL
NEW!	2MB Module	N/A	CALL
	4MB Module	N/A	CALL
	8MB Module	N/A	CALL
	16MB Module	N/A	CALL
	32MB Module	N/A	CALL

C.ITOH

Printers

C1-4,4Plus,8E	1MB Kit	CI4MD-1M	CALL
CI-6	0MB Exp Board	N/A	CALL
	2MB Exp Board	N/A	CALL
	4MB Board	N/A	CALL
CI-8	1MB Module	CI8MD-1M	CALL
	2MB Module	CI8MD-2M	CALL

COMPAQ

Desktops

DeskPro 286e	1MB Module	113131-001	CALL
386/20,20e,25,25e	4MB Module	113132-001	CALL
	4-12MB Exp Board	113645-001	CALL
DeskPro286N	0MB Exp Board	118700-001	CALL
	1MB Module	118688-001	CALL
	4MB Module	118690-001	CALL
DeskPro 386s	1MB Card	113646-001	CALL
	4MB Card	112534-001	CALL
	4-12 MB Exp Board	113634-001	CALL
DeskPro 386/16	4-8MB Exp Board	108070-001	CALL
DeskPro 386s/20	1MB Module	118688-001	CALL
	2MB Module	118689-001	CALL
	4MB Module	118690-001	CALL
DeskPro386N,386s/20N	0MB Exp Board	118700-001	CALL
	1MB Module	118688-001	CALL
	2MB Module	118689-001	CALL
	4MB Module	118690-001	CALL
DeskPro i Series	1MB Module	118688-001	CALL
SystemPro/LT 486/33	2MB Module	118689-001	CALL
	4MB Module	118690-001	CALL
	8MB Module	128877-001	CALL
		128877-002	CALL
Prosignia PC Server 486/33	1MB Module	118688-001	CALL
486DX2-66	2MB Module	118689-001	CALL
	4MB Module	118690-001	CALL
	8MB Module	128877-001	CALL
		128877-002	CALL
	16MB Module	149320-001	CALL
	32MB Module	149147-001	CALL
Deskpro 386/25m,386/33M	0MB Board	129160-001	CALL
486s/16M,486s/25M,486/33M	1MB Module	118688-001	CALL
486DX2/50M,486DX2/66M	2MB Module	118689-001	CALL
SystemPro/LT 386/25,386/33	4MB Module	118690-001	CALL
486DX2/50,486SX/25	8MB Module	128877-001	CALL
Deskpro 5/60M,5/66M	16MB Module	149949-001	CALL
Deskpro XE 560	16MB Kit	149949-001	CALL
NEW!	32MB Kit	149912-001	CALL
	64MB Kit	149912-001	CALL
	128MB Kit	149914-001	CALL
Deskpro 386/33L,486/33L	2MB Card	115144-001	CALL
Deskpro 486/25,486/50L	8MB Card	116561-001	CALL
Systempro 386/33,486/33	32MB Card	116568-001	CALL
486/33-1020e,486/33IE			
486/33-2040e,486/33-680e			
Deskpro XE 433s,XE 450	2MB Module	118689-001	CALL
XE 466		141683-001	CALL
	4MB Module	118690-001	CALL
		141684-001	CALL
	8MB Module	128877-001	CALL
		141685-001	CALL
Prolinea 3/25S,3/25ZS	2MB Kit	141738-001	CALL
	8MB Kit	141742-001	CALL
Prolinea 4/25S,4/33,4/50	1MB Module	141682-001	CALL
4/66,CDS, NET/25s	2MB Module	141683-001	CALL
Net/25tr,Net/25e	4MB Module	141684-001	CALL
Presario 400 Series	8MB Module	141685-001	CALL
Presario 600 Series	1MB Module	141682-001	CALL
	2MB Module	141683-001	CALL
	4MB Module	141684-001	CALL
	8MB Module	141685-001	CALL
	16MB Module	190747-001	CALL
Prolinea MT family	1MB Module	141682-001	CALL
Presario 800 series	2MB Module	141833-001	CALL
	4MB Module	141684-001	CALL
	8MB Module	141685-001	CALL
	16MB Module	190747-001	CALL
	32MB Module	190748-001	CALL

Systems

Systempro/XL	16MB Kit	139132-003	CALL
Prosignia 5/60	136816-001	CALL	
NEW!	32MB Kit	139132-004	CALL
		136817-001	CALL
	64MB Kit	139130-001	CALL
		139132-005	CALL
	128MB Kit	139918-001	CALL
		139132-007	CALL
ProLiant 1000 486DX2/66	4MB Module	141684-001	CALL
Prosignia VS		118690-001	CALL
	8MB Module	128877-001	CALL
		128877-002	CALL
		141685-001	CALL
	16MB Module	149320-001	CALL
		190747-001	CALL
	32MB Module	149147-001	CALL
		190748-001	CALL
ProLiant 1000 5/60	16MB Kit	136816-001	CALL
ProLiant 2000 Family		149949-001	CALL
ProLiant 4000 Family	32MB Kit	136817-001	CALL
		149913-001	CALL
	64MB Kit	149341-001	CALL
		149913-001	CALL
	128MB Kit	139918-001	CALL
		149914-001	CALL

Notebooks

Contura 3/20,3/25,3/25C	2MB Card	139497-001	CALL
	4MB Card	139498-001	CALL
	8MB Card	139499-001	CALL
Contura 4/25,CX.EX	4MB Card	146520-001	CALL
	8MB Card	146521-001	CALL
	16MB Card	146531-001	CALL
Contura Aero	4MB Card	190532-001	CALL
	8MB Card	190597-001	CALL
Concerto	4MB Card	144795-001	CALL
3.3 VOLT!!	8MB Card	144795-002	CALL
NEW!	16MB Card	144795-003	CALL
LTE 286	1MB Card	117081-001	CALL
	2MB Card	117081-002	CALL
	4MB Card	117081-003	CALL
LTE 386s/20	1MB Card	121125-001	CALL
	2MB Card	N/A	CALL
	4MB Card	121125-002	CALL
LTE Lite/20,25,25C,25E	2MB Card	129769-001	CALL
	4MB Card	129769-002	CALL
	8MB Card	129769-003	CALL
LTE Lite 4/25,25C,33C	4MB Card	142337-002	CALL
	8MB Card	142337-003	CALL
	16MB Card	142337-004	CALL
LTE Elite	4MB Card	199013-001	CALL
3.3 VOLTS!	8MB Card	199014-002	CALL
NEW!	16MB Card	144795-003	CALL
SLT/286	1MB Card	110235-001	CALL
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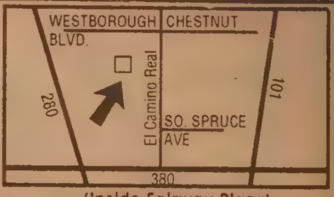

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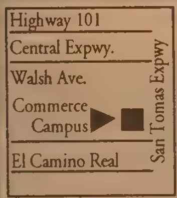

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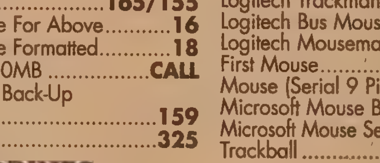

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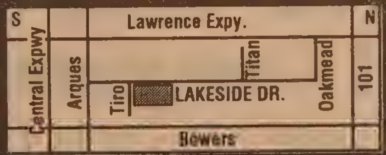

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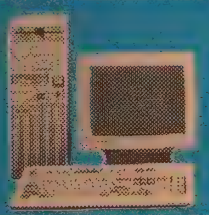

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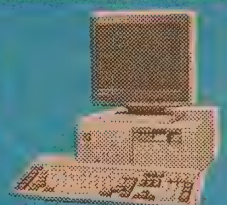

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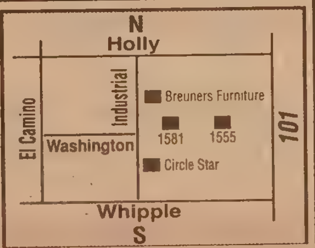

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486DX4-100/256K VLB	1434
486 DX2-66/256K PCI+VLB	1220
486 DX-33/256K PCI+VLB	1107
486 DX2-66/128K ISA/VLB Intel	1121
486 DX-50/128K ISA/VLB Intel	1128
486 DX-33/128K ISA/VLB Intel	1008
486 DX2-66/128K ISA/VLB AMD	1017
486 DX-40/128K ISA/VLB AMD	967
486 BL-75/256K IBM VLB w/Math-Co	1091
486 SLC2-66/64K IBM VLB w/Math-Co	931
486 DX2-66/256K Genoa VLB	1155
486 DX-40/256K Genoa VLB	1004
486 DX-33/256K Genoa VLB	1037
486 DX2-66/256K NICE EISA VESA	1271
486 DX-40/256K NICE EISA VESA	1120
486 DX-33/256K NICE EISA VESA	1153
486 SX-25C VLB	836
38640/128K ISA	794

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512K Cache
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+ 1.2&1.4 FD
+210MB HD
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+ViewSonic 6E monitor
+IDE VLB+mini case
+101Enhanced keyboard
+ Microsoft Mouse+Pad

$2289

OPTIONS

	ADD
-[illegible] Monitor	[illegible]
-ViewSonic 6E Monitor	[illegible]
-[illegible] Monitor 15"	110
-[illegible] w/1MB	[illegible]
-Trident 1MB	[illegible]
-250 MB Hard Drive	[illegible]
-340 MB Hard Drive	[illegible]
-540 MB Hard Drive	145
-IDE VESA Localbus	10
-Medium Case	25
-Full Tower	[illegible]
-Logitech Mouse	15
-Microsoft mouse	15

BASIC SYSTEM includes: Motherboard & CPU, 1MB RAM, 1:1 2HD/2FD controller, w/ 1P/2S/1G, 1.2 or 1.44 MB FD, enhanced case w/Power supply, 101 Keyboard.

HARDDRIVES

130mb/15ms (IDE)	165
170mb (IDE)	175
260mb (IDE) Seagate	205
280mb/14ms (IDE) IBM	210
340mb/13ms (IDE) Conner	230
340mb (IDE) IBM	225
420mb/12ms (IDE) Conner	243
540mb/12ms (IDE) Maxtor	325
540mb (IDE) Conner	325
540mb/11ms (SCSI) Quantum	370
1.0 GB -10ms (SCSI) Fujitsu	685
1.0 GB - 13ms (SCCI) Quantum	685

VIDEO CARDS

Trident VGA-512/1MB (1024x768,16bit)	$38/58
Diamond SpeedStar Pro ISA/VLB w/1MB	105/105
DiamondStealth 24VESA Local bus w/1MB	138
Diamond Stealth 32 VLB w/2MB DRAM	205
DiamondStealth Pro VRAM w/1MB/2MB	210/290
Diamond Viper VESA Localbus w/2MB	320
Diamond Viper PCI w/2MB	320
Diamond Stealth 32/64 PCI w/2m	205/320
SPiDER 32VESA Local Bus w/1MB/2MB	88/138
SPiDER 32VLB Plus w/1MB/2MB	94/144
SPiDER BlackWidow VLB w/1MB/2MB	137/190
SPiDER BlackWidow Engine ISA 1M/2M	137/190
SPiDER BlackWidow+ PCI/VLB w/1MB/2MB	170/230
SPiDER 256 Cache VLB w/1MB/2MB	130/165
SPiDER 64 VLB/PCI w/2MB/4MB	185/290
SPiDER 32 PCI w/1MB/2MB DRAM	135/190
SPiDER Pro VLB SVGA VIDEO w/IDE/I/O	110
Orchid Farenheit ISA1280Plus w/1MB	123
Orchid Farenheit Localbus w/1MB	135
Orchid Kelvin VLB/PCI w/1MB/2MB	145/194
ATI Mach 32 Ultra Pro ISA w/1m/2m	135/185
ATI Mach 32 Ultra Pro VLB w/2m VRAM/DRAM	250/285
ATI Mach 32 Ultra Plus VLB/ISA/PCI 2MB DRAM	199
ATI Mach 32 Ultra Pro EISA w/2MB VRAM	300
ATI Mach 32 Ultra Pro PCI w/2MB VRAM/DRAM	250/185
ATI Mach 64 Pro Turbo VLB w/2MB/4MB	360/550
ATI Mach 64 Pro Turbo PCI w/2MB/4MB	360/550

(*) Come with 4MB-72Pin SIMM

MULTIMEDIA

Creative Lab Soundblaster 2.0	$65
Creative Lab Soundblaster Pro Deluxe	84
Creative Lab SoundBlaster 16 Basic	105
Creative Lab SoundBlaster Pro 16 MCD	140
Creative Lab SoundBlaster Pro 16 MCD ASP	168
Creative Lab SoundBlaster 16 SCSI-II	176
Creative Lab SoundBlaster 16 SCSI-II ASP	205
MEDIAVISION ProAudio Spectrum 16 OEM	110
Mitac16bit sound card+speakers+12games	115
Mitsumi double speed CD ROM (215ms)	153
SONY CD ROM 33A Double Speed	145
NEC triple speed 450KB OEM/Orig.(190ms)	350/445
TOSHIBA CD ROM 3401 (200ms) Internal	285
TOSHIBA CD ROM 3401 (200ms) External	380
Plextor CD ROM DM 3028 Internal	285
Plextor CD ROM External	365
Power Kit II:	
Panasonic single speed	
CDROM+SoundBlaster Pro + 5 CD Titles	215
Power Kit III:	
Panasonic double speed CDROM	
SoundBlaster Pro 16 + 7 CD Titles	330

MONITORS

Nanao F550i 17"/F560iw	$835/1160
Nanao F550iw 17"/T560i 17"	930/1420
Nanao F760iw 21"/T660i 21"	1890/2110
NEC 3V/3FGE/ 4FGE	460/550/610
NEC 5FGE/5FGP/6FGP	960/1,060/1944
MAG MX15/MX17F/MX17FG	445/770/835
MAG DX15F/DX17F (1280x1024,0.26)	380/665
SONY CPD 1730/17SEi 17"	920/1,045
SONY GDP 2036s 20"/2038 20"	1,790/1,905
HITACHI CM-2095 20"/2087 20"	1,190/1,440
HITACHI CM-2187 21"	1,660
HITACHI CM-1586MV	415
HITACHI ACUVUE PS20/PS21	1485/2205
ViewSonic 4E/6E/14E	260/270/325
ViewSonic 15E/15/15EX	360/435/395
ViewSonic 17/17G/17E	920/780/725
ViewSonic 20/21	1,470/1,710
Mini Micro intrl (1024x768) Monitor 0.28	215
Mini Micro Non-interlaced Monitor 0.28	225
DIDO 15" w/LCD/17"	340/665
MITAC 15"/17" (1280x1024)	340/670

CONTROLLER CARDS

IDE w/I/O	$15
IO with 2s/1p/1g	12
IDE VESA Localbus	22
PCI IDE/PCI SCSI-2 Controller	45/140
Promise IDE DC 200/4030VL	110/115
Adaptec SCSI 1522/1542B	75/90
Adaptec SCSI 1542CF/1542CF w/Kit	170/245
Adaptec EISA SCSI 2742T/2742T w/Kit	275/345
Adaptec SCSI PCI 2940 w/Kit	295
Adaptec SCSI 2842 VL w/Kit OEM	270
Adaptec SCSI 2842 VL w/Kit Org.	300
SPiDER Pro 32 VLB IDE w/I/O and SVGA Video	110

PRINTERS

Panasonic KX-2123 II-INV/NEW	195/250
Panasonic KX-P2124 II-INV/NEW	275/330
Okidata 320/400E (Laser)	335/525
HP DeskJet 520/500C	295/395
HP DeskJet 560C (new)	565
HP DeskJet 1200C/1200C Postscript	1420/2110
HP 4P/HP IV Plus/4MP	960/1405/1335
HP 4ML/4L/4M Plus	989/655/1940

MISCELLANEOUS

Zotrix Fax Modem (9600/4800 F, 2400 M)	35
Zoltrix Fax Modem (9600 F, 2400 M)/Win	40
Zoltrix Fax Modem (14400 F, 14400 M)	93
US Robotics Fax/Modem 14,400	118
Microsoft compatible 3-Button mouse	10
Microsoft mouse serial/bus	30/55
Logitech Mouseman serial (4000dpi)	30
Logitech Mouseman Bus (4000dpi)	55
Q-tronic Trackball mouse	29
Colorado Tape backup DJ-10 120MB	98
Colorado Tape backup DJ-20 250MB	158
Colorado Trakker 120MB	215
Colorado Trakker 250MB	325
Baby AT/Mini Tower case w/230W PS	42
Medium Tower case w/230W PS	69
Full Tower case w/250W PS	83
Dual Floppy Drive 1.2+1.4MB	110
TEAC 1.2FD/1.44FD	43/38

KEYBOARDS

101 Enhanced keyboard	$18
Maxiswitch	28
Keytronics	30
Focus 2001/9000	36/60
Focus 6000/7000	26/49
Omnikey 101/102/Ultra	65/65/90

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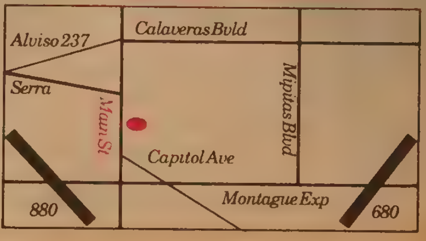

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- * 540MB 12ms IDE HD
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- * TEAC 1.2MB & 1.44MB Floppy Drive
- * KeyTronic 101 Enhanced Keyboard
- * Microsoft Mouse w/ Pad
- * On board PCI IDE Controller 4HD/2FD IDE Controller
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- * Full Tower Case w/ 250 Watts Power Supply w/Dual Cooling Fans & CPU Fan
- * Flash AMIBIOS & Dallas CMOS

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60MHz 66MHz 90MHz

(Monitor not included)

AIR 486-33/66 MHz 32-Bit EISA VESA Local

- *486-33DX / 66DX2
- *AIR EISA VESA Local Bus w/256KB Cache 3 VLB Slot Support Bus Mastering
- *8MB DRAM 72 pin Simm 70ns (up to 128MB)
- *Orchid Fahrenheit or Diamond Stealth VLB w/ 1MB S3 Chip 32-Bit VESA Local Bus 1280x1024 & 16.8 Million Color
- *TEAC 1.2MB & 1.44MB Floppy Drive
- *KeyTronic 101+ Enhanced Keyboard
- *Microsoft Mouse w/ Pad
- *Quantum 540MB 10ms SCSI II Hard Drive
- *Adaptec 2842 VESA Local Bus SCSI II Bus Mastering Controller
- *Full Tower Case w/250 Watts Power Supply, LED
- *Dual Cooling Fans for 66MHz

$1949 / 2049
DX33 DX2-66

(Monitor not included)

BIOTEQ 486-25/33/40/66/75/100 32-Bit VLB 4MB 420MB HD

- *486-25SX/33SX/33DX/40DX/50DX2/66DX2/75DX4/100DX4
- *VLB 256KB Cache Memory Motherboard
- *4MB DRAM Simm 70ns (up to 32MB)
- *420MB 12ms IDE Hard Drive
- *14" SVGA Non-Interlace 1024x768 0.28dp monitor
- *Orchid Fahrenheit or Diamond Stealth VLB W/1MB 1280x1024 & 16.8 True Color
- *TEAC 1.2MB & 1.44MB Floppy Drive
- *Mitsumi 101 Enhanced Keyboard
- *Microsoft Compatible Mouse w/ Pad
- *VESA Local Bus 2HD/2FD IDE Controller w/ 2 Serials, 1 Parallel, & 1 Game Ports
- *Med Tower Case w/230 Watts Power Supply
- *CPU Cooling fan for 50,66,75,100 MHz system

$1199 /1239 /1329/1359/1389
SX25 SX33 DX33 DX40 DX2-50

$1409/1699/1799
DX2-66 DX4-75 DX4-100

IBM 486SLC2 50/66/75 32-Bit VESA Local Bus 64KB/256KB 250MB HD

- *IBM 486SLC2 50/66/75BL3 MHz
- *ALARIS 486SLC2/BL3 VLB Motherboard w/64KB Cache Memory (up to 128 KB) OR W/256KB Cache Memory(for 75BL3) & Math. (floating point) Coprocessor Manufactured by IBM in the USA
- *4MB DRAM Simm 70ns (up to 16MB)
- *250MB 12ms IDE Hard Drive
- *14" 1024x768 0.28dp SVGA Non-interlace Color monitor
- *Cirrus Logic VLB Graphic Accelerator Card w/1MB & 16M Color
- *Mitsumi 1.2MB & 1.44MB Floppy Drive
- *Mitsumi 101 Enhanced Keyboard
- *Microsoft Compatible Mouse w/Pad
- *VESA Local Bus 2HD/2FD IDE Controller w/2 Serials, 1 Parallel, 1 Game Ports
- *Mini Tower Case w/230 Watts Power Supply

$ 1069 / 1119 / 1349
SLC2-50 SLC2-66 BL3-75

intel 32-Bit PCI Local Bus PENTIUM 90/100MHz

- * Intel PENTIUM P5 90/100MHz
- * PCI VESA Local Bus Motherboard w/512KB Write back Cache
- * 16MB DRAM Simm 70ns 72 pin (up to 128MB)
- * 540MB 12ms SCSI HD
- * Orchid Kelvin 64 64-bit Graphic Accelerator w/2MB RAM 1280x1024 Max. Resolution 16.8 Million Max. Color Display
- * TEAC 1.2MB & 1.44MB Floppy Drive
- * KeyTronic 101 Enhanced Keyboard
- * Microsoft Mouse w/ Pad
- * Adaptec 2942 PCI SCSI Controller
- * On board 2 Serials & 1 Parallel
- * Full Tower Case w/ 250 Watts Power Supply w/Dual Cooling Fans & CPU Fan
- * Flash AMIBIOS & Dallas CMOS
- * Green Power Saving

$ 3399 / 3799 (Monitor not included)

Miscellaneous

CPUs (Intel/AMD/Cyrix/TI 386, 486 ,Pentium)	Call
MathCoprocessor 387/487 (Intel/AMD/ULSI/Cyrix)	Call
SIMM Memory Chips (256KB,1MB,4MB,16MB,32MB)	Call
SIPP, DIP Memory Chips (256KB,1MB,4MB,16MB,72pin)	Call
Hard Drives (IDE, SCSI): Quantum, Conner, Maxtor, Seagate, Western Digital, Teac, Toshiba, Fujitsu,	Call
VESA IDE I/O 32-Bit Controller 2HD, 2FD, 2S, 1P, 1G	$28
Logitech Serial, Bus MouseMan, & TrackMan 2	$49*$65/$75
Logitech MouseMan Cordless	$89
Logitech Scanman 256 w/OCR 400DPI	$209
KeyTronic 101+ enhanced Keyboard	$35
DSI 14.4K/14.4K FaxModemWinFax+DosFaxIn/Ext	$135/165
Zoltrix 2.4/9.6K Fax Modem w/MNP5, BitFax for Win	$39
TEAC 1.44MB/1.2MB/Combo Floppy Drive	$42/53/$109
PRINTERS (Apple,HP,Panasonic,Citizen,Epson,QMS)	Call
Printer Memory Upgrade (HP,Panasonic, etc)	Call
Coloroda Tape Backup 120MB/250MB	$109169
Coloroda Trakker External Tape Backup 120/250MB	$299/339
Conner Internal 250MB Tape Backup w/1 Tape	$158
UltraStor 34F VLB Controller (SCSIBusMastering)	$259
Promise VLB IDE Cache Controller 4030	$130

Monitors

14" SVGA 1024 .28 60Hz Int/NI	$235/$255
14" Impression 1024x768 .28 72Hz	$279
15" SVGA Color Ana/Digi. 1280 .28 NI	$329/379
17" KFC SVGA Ana/Digi 1280 .26 NI	$699/729
Impression 7 17" .26 (MAG DX17 OEM)	$699
Samsung 15GL .28/17GL .26	$429/829
ViewSonic 4E/6E(NI) 1024 .28	$265/285
ViewSonic 14E/15E/15	$329/379/439
ViewSonic 17G/17 76Hz	$819/929
ViewSonic 20/21 1600x1280 Flat	$1499/1799
SONY 1730 /SE1.25 72Hz	$959/$1199
SONY 20" 2038 .30	$2199
NEC 15" 3V	$479
NEC 3FGe/4FGe Flat 60/72	$569/629
NEC 17" 5FGe 1024/5FGp 1280 Flat	$999/1349
NEC 21" 6FGp 1280x1600 Flat	$2149
MAG 15" MX15F/MX17FG 17"	$479/$839
MAG DX 15F/DX17F	$439/$749
Nanao 550i/550iW/560iW	$939/10991329
Nokia 447B 17" Trintron .25	$949
Nokia 21"445M/445X 21"	$2099/$2699

486- 25 / 33 / 40 / 66

- * ISA Motherboard 128KB Cache
- * 4MB SIMM DRAM 70ns

$979 /1019 /1169 /1159 /1319
SX25 SX33 DX33 DX40 DX2-66

Cyrix 486DLC 40 AMD386-40DX

- * ISA Motherboard 128KB Cache
- * 4MB SIMM DRAM 70ns

$ 875 / 839
486DLC40 386DX40

Cyrix 486SLC2 40/50 AMD 386SX33

- * ISA Motherboard
- *2MB DRAM SIMM (For 386/33SX)

$ 769 / 799 / 849
SX33 SLC2-40 SLC2-50

INCLUDE:

- *212 MB 13ms IDE Hard Drive
- *14" 1024x768 0.39dp SVGA monitor
- *Trident 8900CL SVGA 1024x786 Graphic Card w/512KB
- *Mitsumi 1.2MB **OR** 1.44MB Floppy Drive
- *Mitsumi 101 Enhanced Keyboard
- *Microsoft Compatible Mouse w/ Pad
- *2HD/2FD IDE Controller w/2 Serials, 1 Parallel, 1 Game
- *Mini TowerCase w/230 Watts PS

Upgrade Selections

Pentium 66 + 256KB PCI + Fan	$1199
Pentium 60 + 256KB PCI + Fan	$1119
486DX2-66+256KB PCI+Fan	$689/$639
486DX-33/40+256K PCI+Fan	$559/$549
486DX2-66+256K EISA+Fan	$759/$699
486DX-33/40+256K EISA+Fan	$629/$619
Pentium 66+256KB VLB+Fan	$1079
Pentium 60+256KB VLB+Fan	$1009
486DX-50+128KB VLB+Fan	$499
486DX2-66+128K VLB+Fan	$489/$439
486DX-33/40+128K VLB+Fan	$339/$329
486SX-33 + 128KB VLB	$189
486SX-25 + 128KB VLB	$169
IBM 486SLC-75 + 128K VLB	$479
IBM 486SLC-66 + 64KB VLB	$289
IBM 486SLC-50 + 64KB VLB	$239
486DX-50+128KB ISA+Fan	$479
486DX2-66+128KB ISA+Fan	$469/$419
486DX-33/40+128K ISA+Fan	$339/$329
486SX-33 + 128KB ISA	$179
486SX-25 + 128KB ISA	$159
486DLC-33 + 128KB ISA	$139
486DLC-40 + 128KB ISA	$159
386DX-40 + ISA	$105

Graphic Cards

Trident 9000 1024x768 w/512KB	$39
Trident 8900C 1024x768 w/1MB	$59
Cirrus Logic ISA Accerator w/1MB	$65
Cirrus Logic VLB Accerator w/1MB	$85
Orchid Fahrenheit VESA VLB/ISA w/1MB	$145
Orchid Celcius VLB 1MB/2MB VRAM	$149/199
Orchid Kelvin 64 VLB/PCI 1MB/2MB	$169/$209
Diamond Speedstar Pro VLB/ISA 1MB	$109
Diamond Stealth 24VLB w/1MB True-Colo	$149
Diamond Viper VLB/PCI w/2MB VRAM	$329
Diamond Stealth 32 VLB/PCI 1MB/2MB	$199/249
ATI Ultra Graphic Pro w/2MB VLB/PCI	$289
ATI Ultra Graphic Pro w/2MB EISA/MCA	$399
ATI Ultra Graphic Turbo w/2MB PCI	$399
Genoa 8500VL 24-Bit Acc.	$99
Number 9 GXe 64 2MB PCI/VLB	$259
Matrox PCI/2 Plus 1600X1200	$539
Spider Widow Plus 1MB/2MB	$195/249
Spider 64VLB/PCI 2MB/4MB	$199/299
Spider 32VLB 1MB/2MB	$95/135
Spider 32VLB Plus 1MB/2MB	$119/159
HerculesGraphite VLB Pro 1MB/2MB	$299/419
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Herclus Dynamite Pro PCI2MB	$289

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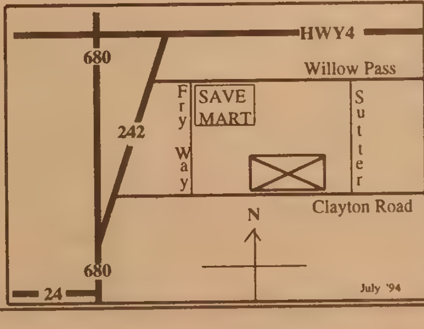

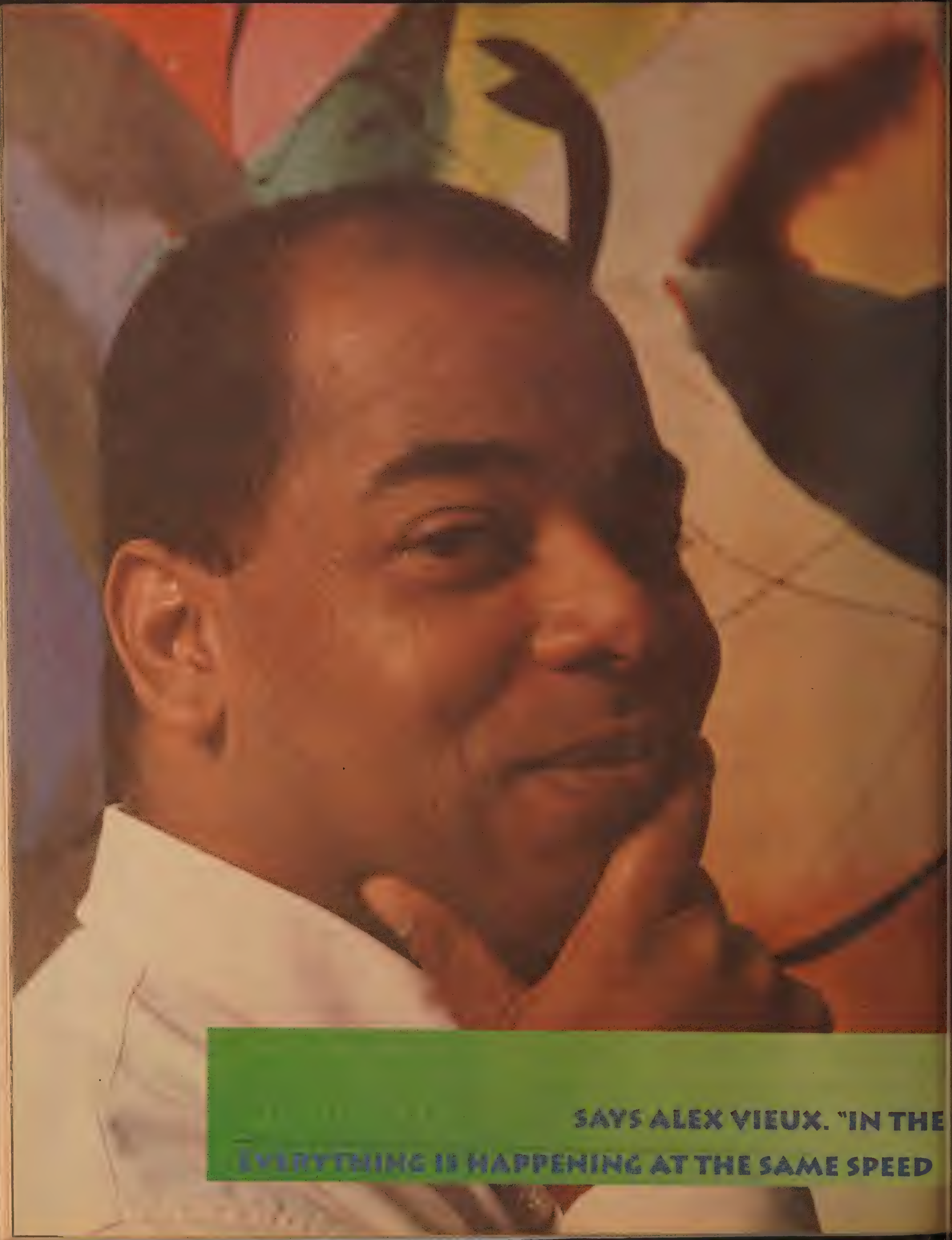

[illegible] SAYS ALEX VIEUX. "IN THE

EVERYTHING IS HAPPENING AT THE SAME SPEED

PLANNING FOR GLOBAL SUCCESS

DASAR'S ALEX VIEUX ON INTERNATIONAL BUSINESS STRATEGIES

BY MARY EISENHART
PHOTOS: ANNE KNUDSEN

"THE GLOBE IS ONE,"
OMPUTER INDUSTRY, EVERYONE HAS TO UNDERSTAND THAT
ND EVERYONE IS GETTING INFORMATION AT THE SAME TIME.

It's very important to understand that what you do today will have an impact in France, will have an impact in Spain, will have an impact in Japan.

"So it's very important to build a company from day one with the concept that you will have to have someone talking to a guy in Bruges or Nice as quickly as to a guy in Nevada."

DASAR Inc., the Palo Alto company of which Vieux is chairman, is in the business of connecting everybody to everybody else in the computer industry, from the CEO to the first-time buyer—globally. Says Vieux, "We're trying to link people. We're the international linking group."

Son of a French diplomat, Vieux was bitten by the Silicon Valley entrepreneurial bug when he came to study at Stanford. "When I arrived in California almost ten years ago, I had heard about Silicon Valley, but I didn't know about the reality. I started realizing the importance and the breadth of knowledge we could get out of Silicon Valley.

"I spent several years of covering Silicon Valley as a journalist for *Le Monde,* which is like the *New York Times* in Europe."

In the course of his job, Vieux had occasion to meet many industry figures, and to attend the various high-tech summits put on by Dick Shaffer, Esther Dyson, and Stewart Alsop. "One day it struck me that all those industry executives were talking to the other executives in the US, but few of them were talking to the other executives in Europe. So," he thought entrepreneurially, "why don't I try to bring together computer leaders from the US and Europe, and bring together the computer industry?

"At the same time, I realized that many people in Europe feared what was going on in Asia, particularly in Japan. And I thought, why don't we do a forum where everybody can talk to each other, across the world, from three continents? So the idea of ETRE [European Technology Roundtable Exhibition] was born."

This September brings the 1994 version to Barcelona, along with the premiere of Informat, a complementary trade show. A high-level conference attended by most of the US industry's movers and shakers, ETRE (along with its Asian counterpart, ATRE) dispenses information and provides ample networking opportunities for international ventures. Vieux happily rattles off a litany of ETRE-born deals—IBM's acquisition of Parallan; the US IPO for Business Objects; Gupta entering the Italian market thanks to a conversation with Olivetti's vice chairman.

"By being open to new ideas, and by going to Europe to meet with European entrepreneurs, those CEOs and those business decision makers ended up doing deals that they would not have done otherwise.

"We're a catalyst, an international catalyst. Why is that important? It's important because 50% of the business of the US computer industry is outside of the US. And how are you going to be able to do business in the US if you don't take into account 50% of your market?"

DASAR's latest project is a global user satisfaction survey.

"The user who uses Borland Office or an IBM ThinkPad is the same whether he's in Scotland or Scotts Valley," says Vieux. "So we wanted to be sure that we knew and understood what they like in the products globally.

"Why do they like the product? Is it because it's well installed? Is it because it's not expensive? Because they like the advertising? Because the sales guy is good? We wanted to know that from a Japanese viewpoint, the Taiwanese viewpoint, the Indian viewpoint, the Scandinavian and American viewpoint."

Drawing from a variety of sources and methods—CompuServe, direct mail, telemarketing, and trade shows around the world—the survey will poll five thousand users. The data will ultimately be marketed to industry vendors, but the winners of the user satisfaction survey will be announced in September at ETRE/Informat.

"Amazing" recurs frequently in the conversation of Vieux, who's clearly enjoying the adventure, jet lag and all. "To a French kid coming to this country, it's a great entrepreneurial venture, to start out of nothing and to get this idea—and then when you call someone in Portugal or Russia, the person tells you, 'Oh, you're the ETRE guy!' It's a great pleasure." (DASAR Inc., 415/321-5544, fax 321-5597.)

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WHAT ARE YOU TRYING TO ACHIEVE WITH ETRE?

When we started out in 1990, we had a few parameters: to have an international conference, to have the top leaders, to have as many countries represented as possible, to have content as well as networking opportunities. For the content side, we invited a number of journalists with whom I'd rubbed elbows at press conferences. So we put together a conference program that was a similar quality to what the best conference organizers do in the US.

We decided that we needed be sure that we incent all the executives from Europe to go and meet with their counterparts, so that they don't fear these American CEOs—they see that they are human beings like them, and don't see them as demigods and semi-heroes. In the same way, the people from the US see the other people who are really doing the business in Europe—the distributors, the market makers, all those people. The results are there.

We decided to limit it to a CEO-only conference. We could have invited a lot of VP-Europe and directors of international operations, but we kept it very selective. It seems that it worked—people wanted to hear the story straight from the horse's mouth and wanted to talk to the highest decision maker from a company.

We realized last year that we wanted the formula to be really alive. Those people were coming back—we have a 70% return rate—but we wanted to have something new.

We had a conference where industry CEOs were talking to other CEOs. Why don't we have a forum where we have industry CEOs talking to the CIOs of the industry? We wanted to invite the top CIOs of Europe—the head of the computing department of Mercedes-Benz, of Fiat, of Renault, of Bank of Italy, of Bank of Spain, of Saab, of Lloyds of London. We wanted to have all those people to see those CEOs who are coming and who have so much impact on their daily lives.

We tried to put together a forum and we saw there was an advantage to having not only a conference where people could talk to each other, but also a trade show. So we conceived Informat.

We have ETRE, where the industry speaks to the industry. We have Informat, a global conference program where we have all the CIOs who are coming from seventeen countries in Europe; we're going to meet with three hundred CEOs coming from the US and Europe.

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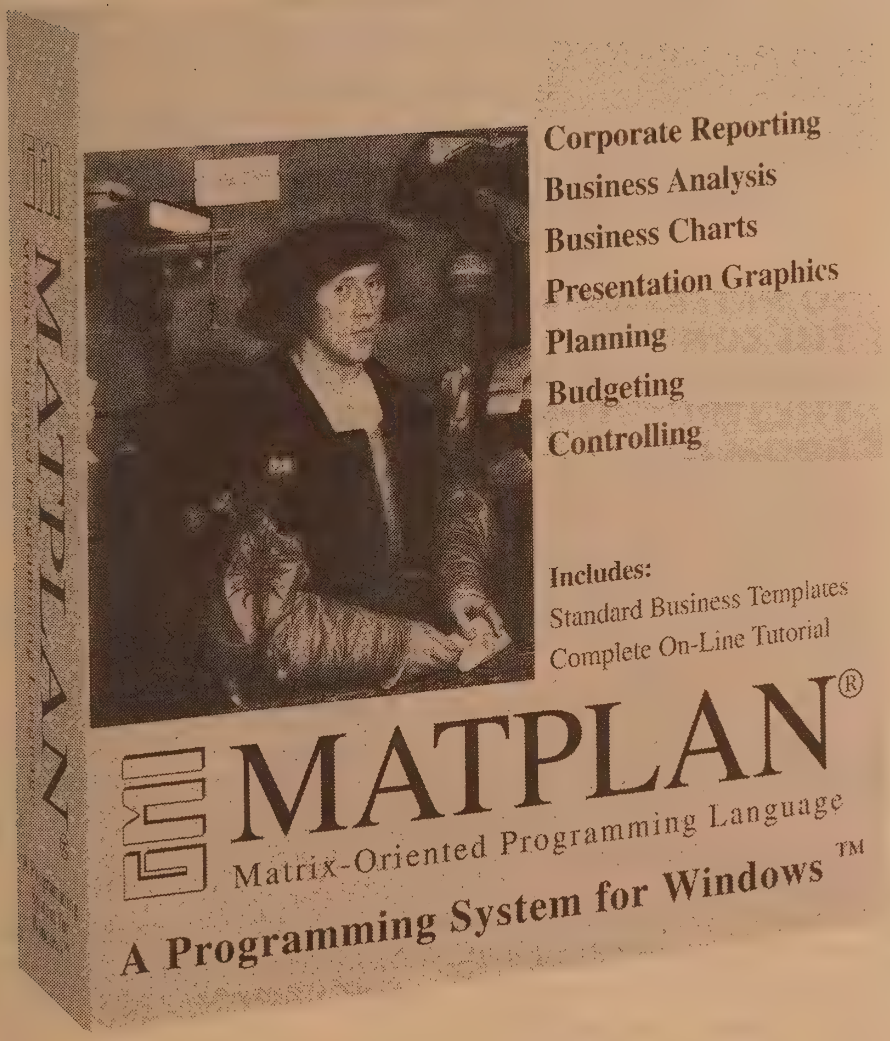
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We have a trade show and a global conference program; we have editors coming from all over Europe to moderate roundtables. A number of CIOs will be speaking about their experience, and the CEOs of the companies that provide products will listen to the CIOs, and at the same time, the same roundtable, they'll be speaking. We're an interactive forum where users and suppliers are going to speak with each other.

The concept behind it was to do for the computer industry what the Cannes film festival has done for the movie industry. The dream is coming true—we have industry talking to industry, and industry talking to the volume buyers. There's a communication side and a commercial side.

Europe needed it—a trade show which was also very unconventional.

HOW WOULD YOU CHARACTERIZE THE INDUSTRY IN EUROPE?

The industry in Europe is paradoxically very lively and at the same time in crisis. It's lively because there's a lot of creativity and a lot of great engineers in Europe. Every software vice president in America will tell you he'd like to hire the guy who did NextStep for Steve Jobs. And there are so many of those!

Because of the incredible training in the schools and the creativity that is facilitated in the engineering schools of Europe, people have great ideas about how to write software. It has always been a habit to say in engineering school that you write software the same way people in literature write novels. People have that fever to go out and create something.

But at the same time we've been totally unable to create a market for ourselves, and to have products which are well marketed in Europe. Only a few entrepreneurs succeed as businesspeople in Europe, either because they get into the European habits or the European culture or they're frustrated by the frontiers and boundaries between France and Germany, or France and Spain, and so forth. Or because they don't know how to break into those markets.

And last but not least, when you have a product that has been anointed in the US, it has much more appeal than a product which is very good but developed in Europe. So people always think in terms of "how can I go to the US?" and they always fear the toughness of the American market.

But those companies that have done it, like Business Objects and Neuron Data, and all the entrepreneurs that have taken the risk, like Philippe Kahn and Jean-Louis Gassée, to break the mold and to come here—when they go back there, they are heroes. There is a model where you start in Europe, for creativity's sake; you come to the US to get anointed, and go back to Europe to get some money. If you don't do that, it won't go anywhere.

The large corporations in Europe have failed. It's not that they're not good, but they have failed. Bull, Siemens, Olivetti, who are big players in the computer industry, have not been able to adapt with the swiftness and dynamism of the computer industry in the US. The rate of change every six months is not adapted to the ways these companies are run. They were run like the IBMs and Digitals.

They had one drawback on top of it—the European culture, where out of every six months you had one month of vacation, so you're losing 15% of your time. You're playing 85% of the game. It's like football—you have to sweat as much as the other team to get your yards, and people didn't do that, didn't understand that the rule of the game is that this industry has become extremely global.

One thing that I've been fighting for is to explain to people that the brain has no flag, and creativity has no flag and no country. The thing that's amazing in this industry is that when you're good, you work hard, you're really perseverant, you know the processes, you know how things work—you succeed. It doesn't take more than that, but it doesn't take less than that. Sweat hard, work hard, it happens.

SO IN TERMS OF THAT—YOU TALK ABOUT THE CONFERENCES BEING AIMED AT CEO-LEVEL PEOPLE. WHERE DOES THAT LEAVE THE STRUGGLING ENTREPRENEUR? IS THERE ROOM FOR THE SMALL STARTUP HERE?

Absolutely. Yesterday an Italian entrepreneur based in Silicon Valley called me and said, "I want to have a chance to access those bigshots." I tell him, "Hey, I have a program for you."

We give them some help. We don't charge them as much as we charge the Microsofts or the Borlands or the IBMs, because they can't afford it. We try to be sure that it happens.

I do believe in longevity, and longevity in this business really means helping entrepreneurs. To help the establishment—they don't need me. Microsoft doesn't need me to meet with anybody they want. On the other hand, the small entrepreneur, the medium-sized company, which does not have access, which is based in Hungary—how many of them *never* get the chance to meet with Bill Gates?

This Finnish company last year spent thirty-five minutes with Gates talking about their product last year, and at the end Gates gave them the name of a person in Redmond. They talked to this person, and now Microsoft is integrating their product into its product line.

We represent a conduit to access people who are inaccessible.

When I left business school and people asked me what I wanted to do in life, I said I wanted a tribunal, where I could express some ideas about where the industry is going. This is a tribunal where we can really help people, and just by inviting them can give them some exposure. Give them their fifteen minutes of celebrity.

YOU HAVE A CONFERENCE IN EUROPE AND A CONFERENCE IN ASIA. HOW WOULD YOU DESCRIBE THE DIFFERENCES IN THE INDUSTRY IN BOTH PLACES?

They're very different. The overlap is simply the remoteness from the decision-making power. Both Europe and Asia are very remote from where the decisions are made, at least on the software side, and follow eagerly what is being done in the US. They're very eager not to fall behind.

What is different is that in Europe you have the famous six weeks vacation, and in Asia you don't have that.

In Asia, you need to differentiate among the countries. Japan will become a

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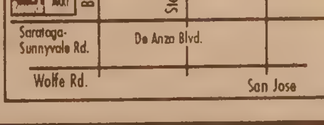

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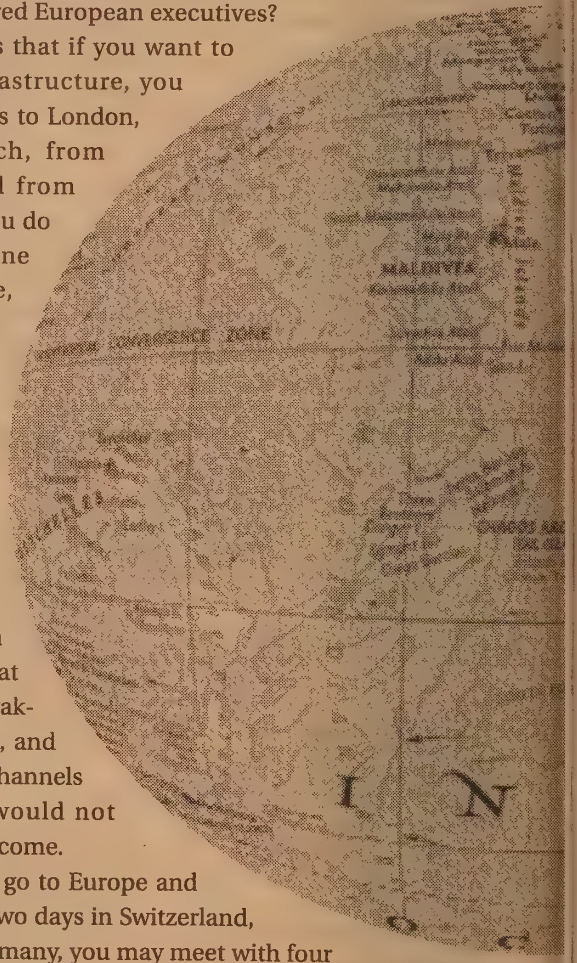
power in the software industry.

Asia has a lot of financial power, which Europe doesn't have. Asia has a bigger market tomorrow than Europe has. Asia has an underlying economic structure which is more solid than the European one, which has a lot of problems. Asia has a tremendous hardware manufacturing capability and expertise that they have built, that Europe doesn't have. Asia has this eagerness to dominate the commodity market which Europe has never been good at. Europeans are always good at doing Yves St. Laurent; they are not good at doing Levi Strauss jeans. That's a problem. We are able to market quality and high-end things; we are not good at marketing for volume, where processes are as important as the content.

WHAT'S THE VALUE OF THE CONFERENCE FROM THE STANDPOINT OF THE AMERICAN ENTREPRENEUR?

Why should someone go to a European conference where they have to pay a couple of thousand dollars, plus the tickets, plus taking a few days off, to go to Europe to hobnob with three hundred US executives and sometimes two hundred European executives?



The great advantage is that if you want to know the European infrastructure, you don't have to go from Paris to London, from London to Munich, from Munich to Madrid, and from Madrid to Copenhagen. You do that under one roof, at one place. At our conference, you have everybody in the European infrastructure. It's amazing cost optimization. You save a lot of time, a lot of money, a lot of effort.

The second thing is that there is a lot of information gathering, there's a lot of content. So you learn what is hot in Europe, what are the countries that are waking up to the new markets, and what are the distribution channels and networks that you would not have tapped if you had not come.

More important—if you go to Europe and you have to spend one or two days in Switzerland, and one or two days in Germany, you may meet with four or five or six people who are part of the distribution infrastructure or the OEM infrastructure or the vendors who exist there. When you go to ETRE, you have a bigger choice. It's more open than if you made five appointments and had to choose which of the five is going to carry your product. Now you have thirty or forty of them. It makes your life easier, and it's a better selection process.

What is important also is that paradoxically you have so many young American firms which make deals in Europe with other American firms that they would not have done had they gone to the other conferences in the US. Everybody is over there on neutral ground, and nobody comes with a status-conscious approach. They're all foreigners on neutral soil, and they start working with each other better.

WHAT ARE THE EMERGING MARKETS?

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PENTIUM 66 PCI 256K	$1282	$1389	$1549	$1769	$2002
PENTIUM 66 VLB 512K	1225	1331	1492	1711	1944
PENTIUM 60 PCI 256K	1165	1271	1432	1651	1885
PENTIUM 60 VLB 512K	1107	1214	1375	1594	1827
BLUE LIGHTNING 75MHZ	520	626	787	1006	1240
486DX2-66 PCI 256K	555	662	823	1042	1275
486DX2-66 VLB 256K	438	545	705	925	1158
486SLC-66 VLB 64K	246	353	513	733	966
486DX-40 PIC 256K	438	545	705	925	1158
486DX-40 VLB 256K	322	428	589	809	1042
486DX2-50 VLB 256K	383	488	649	868	1102
486SLC-50 VLB 64K	220	326	487	707	940
486SLC-50 ISA	170	276	437	657	840
486DX2-50 PIC 256K	476	583	743	963	1196
486DLC-40 ISA 128K	137	243	404	623	857
486DX-33 PCI 256K	471	578	739	958	1191
486DX-33 VLB 256K	355	462	622	842	1075
486SX-33 VLB 256K	189	295	456	675	908
486-33 ISA	150	256	417	636	869

UPGRADES:

340MB Hard Drive	ADD $40
540MB Hard Drive	ADD $205
15" Non-Interlaced Monitor	ADD $190
17" Non-Interlaced Monitor	ADD $450

BASIC SYSTEM INCLUDES:
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- 101 Keyboard
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MULTIMEDIA SYSTEMS

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486DX-50 MHz/256K/Intel CPU	1530
486DX2-66 MHz/256K/Intel CPU	1560
Pentium 60 & 8 MB/512K/Intel CPU	2350

MONTHLY SPECIALS

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14.400/14.400 Internal Fax & Modem	94
486SLC2-66 2 Local Bus/CPU/64K ALARIS	24

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Chinon CD SCSI	325
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DTC 2280 ISA IDE	14
DTC 2270 VLB IDE	58
DTC 3290 EISA SCSI	418
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Promise DC-4030 VLB IDE Cache Controller	124

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2.0 GB SCSI-2 Fujitsu	1450

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14.400/14.400 Fax Modem Ext v.32S/R	159
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Intel Fax/Modem 14.4/14.4 Fax	146

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14" SVGA .39 (1024x768)	185
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ViewSonic 15E NI .28	410
17" ADI 28 NI 1280x1024	740
NEC 5FGE/4FGE	1059/735
Nanao 550i	855
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MOTHERBOARDS

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3 486DX-66/50/33/256K 2 VLB Opti	115
486DX-66/50/33/128K 3 VLB	85
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LX 810	199

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SpeedStar Pro (ISA/VLB) 1MB	105
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8500VLB w/1MB	95
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Orchid	
Fahrenheit VLB w/1MB	146
Celsius VLB 1MB/2MB	194/270
Spider	
VLB 1MB/2MB	93/135
Black Widow 1MB/2MB VRAM	170/212
Trident	
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9000 w/512K	38
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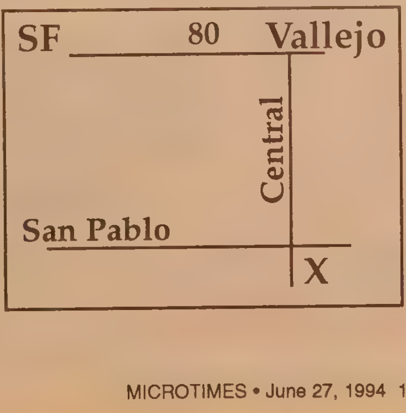

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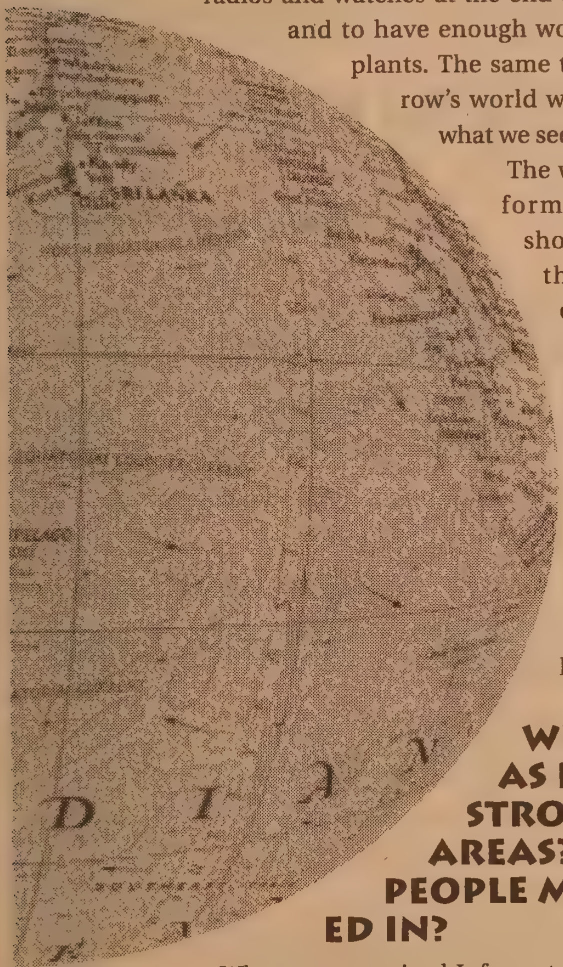
It varies from one year to another. For the past three years Eastern Europe has been emerging; emerging doesn't always mean solvent. Whereas in Asia you have some emerging countries which are solvent, such as Taiwan. The Taiwanese market is becoming good for software, and the copyright protection is getting better. Korea is becoming a good country to do things, and countries like Singapore are becoming good users of products. The biggest emerging market today in Asia is China.

Asia has a big pool of talent of engineers that we see here. I was in India in December, and I talked to four hundred CEOs of software companies. They are not small companies, they have one or two hundred people. Contract programming houses and package goods programming. I was absolutely amazed—I had heard that they were all body-shopping kinds of things, and this is not the case.

Brains have no boundaries. Those guys know. They have brothers, cousins, friends who are engineers who went to Berkeley and are working at Sun or Oracle or elsewhere, so they know better. They know that body-shopping is going away.



Indian engineers accept work for low dollars the same way Japan used to do radios and watches at the end of the '50s, to gain expertise and to have enough work for their manufacturing plants. The same thing is happening—tomorrow's world will be totally different from what we see today.

The whole Asian market is transforming itself, and as a trade show organizer, we're inviting those companies to come exhibit their products at Informat. It will be the first international trade show where you have emerging Asian countries, the US and Europe. And if anybody wants to sell their product in Europe and Asia, this is the first central marketplace in the computer industry.

WHAT DO YOU SEE AS ESPECIALLY STRONG PRODUCT AREAS? WHAT ARE PEOPLE MOST INTERESTED IN?

When we conceived Informat, we said we want to do trade shows different from the way they were done before. We know that the multimedia specialist is very different from the mobile computing specialist. The software engineer who does a client-server application is completely different from the desktop computing specialist. So we said, let's create villages.

The subtitle of Informat is "the global villages." Our job is to be global, and the villages harbor one technology, one set of solutions. It's a metaphor to say we're trying to make the world a global village. At our trade show we have manufacturers coming from all over the world, representing so many different nationalities; but in a village, which is a place you can walk through in two or three hours and know the people who are part of it, you have a center, and you have all the players there.

We have a multimedia village, we have a Windows village, we have a UNIX village, we have a client-server village, we have the mobile computing village... We have twelve villages. In the middle, we have the capital.

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The answer to your question is in the villages we have selected. We have selected villages that correspond to people's needs. All those villages correspond to a thirst for knowledge and products around the globe, and Europe in particular.

SO THE TRADE SHOW IS MORE FOR EXISTING PRODUCTS THAN FOR EARLY STAGE DEVELOPERS?

We realized that we wanted to have established product, but we wanted also to display some novelty, and not just have the products five months after they've been introduced in America. So we're trying to encourage the emerging firms.

You remember the Greeks? In ancient Greece there was the agora, where people could go and talk and express the ideas and show the products and say what they had to say.

In the middle of each of our villages is an agora, where people can come with their product. We invite them to come and show their new product; we have a special package for emerging companies to show their product. Every thirty minutes there's a new product being shown. In twelve villages, every thirty minutes there's something exciting happening. New products from everywhere.

It will cost entrepreneurs about $3000 to show their products to thirty thousand people throughout Europe. You're talking about 75% of the purchasing power of Europe in one place. You'll have a chance to show all their products under one roof.

People wanted to see something new, not what they could see elsewhere. So we are giving them a forum to do that.■

SIDEBAR

AN OPPORTUNITY FOR US/ISRAELI PARTNERSHIP

BY MICHAEL ROBIN

Israel's sustained economic growth and a well-developed infrastructure for data, communications, transportation, telecommunications, and banking have helped place it among the world's top nations in terms of future economic growth and competitiveness. Giroa Meyuhas, Israeli economic minister to North America, is quick to add that "the key to Israel's high ranking is its investment in education. The country leads the world in science and engineering education and boasts more of these professionals per capita than any other nation."

Israel's dynamic economy further benefits from free trade agreements with the European Community (EC), the European Free Trade Association (EFTA), and the US; its strong historical and cultural ties to the newly opened economies of Eastern Europe; and ready access to markets in Africa and Asia.

To encourage companies to take advantage of the opportunities presented by Israel, BIRD, the Israel-US Binational Research Development Foundation, was established in 1977. With an endowment of $100 million, contributed equally by the governments of Israel and the United States, BIRD seeks to foster joint research and development by US and Israeli companies. It does this by cost sharing, 50/50, with each joint US/Israeli team to "develop and commercialize innovative (non-defense) hi-tech products or processes."

The funding provided by BIRD is a conditional grant, not a loan; there are no strings added to the deal between the two participating companies or to the contents of the project. Once the project succeeds and brings a product to the market, BIRD receives royalties on sales up to 150% of the original grant. Should the project fail, the participants are under no obligation to repay BIRD.

One-third (or 129) of the 364 projects that BIRD has supported are with California-based companies, and of these, eighty are in the Silicon Valley area. So far, fifty-six of the projects that include a California company have generated direct sales of $564 million.

The target US partner is typically a growing public company, "with $20–$500 million in annual sales, engaged in developing, manufacturing, selling, and supporting high-tech products, and will have well-established marketing channels and a large customer base."

The target Israeli company typically has "leading-edge technological and production expertise in the field in which the US company has a relative market advantage." ■

Resources

BIRD (Israel-US Binational Research & Development Foundation)
2350 Mission College Blvd.,
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Other Global Resources

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Held yearly in Japan, this conference brings together top-level executives from US and Japanese companies, with a view to fostering joint ventures and business collaborations.

CompuExpo
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Trade show and conference focused on international PC technology, with product demos and facilitation of business partnerships.

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- Mini Tower Case

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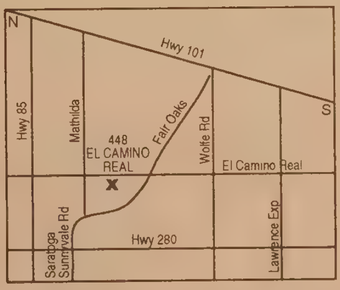

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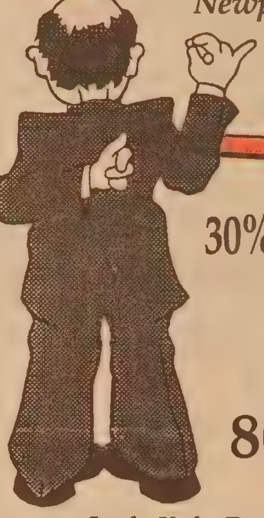

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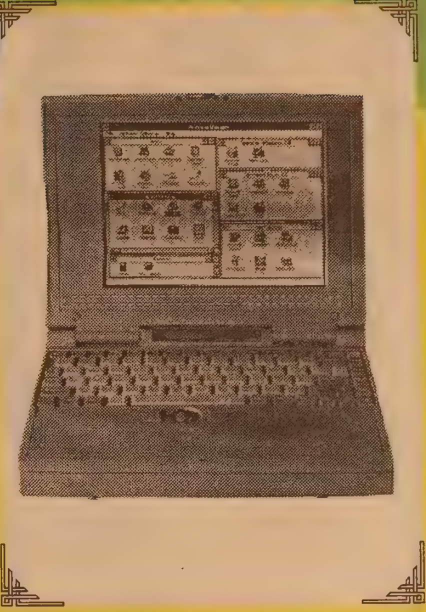

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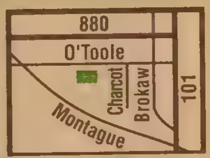

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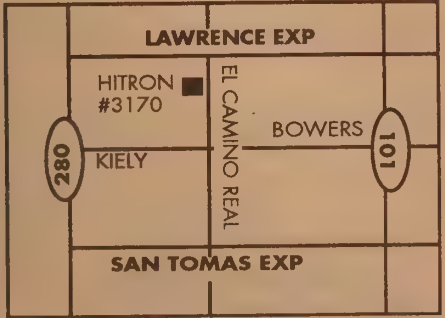

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continued on page 294

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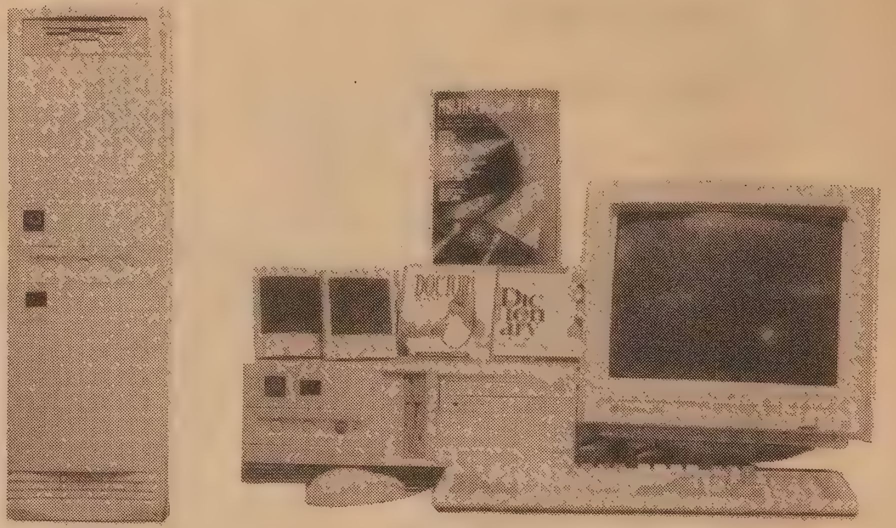

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BMUG

Mac Users Are Different And Other Musings Of The Slow Season

BY DAVID MORGENSTERN

It's potpourri time at the old BMUG column.

We're in that late spring/early summer calm in the Mac world, halfway between Macworld Expos, and too early for any of the goodies that will be revealed at the annual MacHack conference. Some eager beavers are looking far forward, to the usual fall arrival of new Mac models. But the immense number of intros over the past couple of years have made many aficionados almost complacent.

But is nothing happening? No way!

There's always plenty happening at BMUG. You can always have fun in meetings, or on the Planet, our bulletin board system. For those with a civic spirit, there are members helping others with problems or exploring online services. You might even catch a glimpse of the PowerBook special interest group playing a network game—at the beach.

They Kill Hard Drives, Don't They?

I recently had the opportunity to talk with Disk/Trend's Jim Porter, a leading storage industry analyst. He made the interesting observation that two groups, Macintosh users and scientists, are bolder about using storage than the mass of PC users. He pointed to the early adoption of removable-media drives, such as SyQuest and magneto-optical drives as evidence. These drives are just now making their way to everyday use on PC desktop systems.

Jim explained that scientists are used to failure as a matter of course. The process of solving problems with the scientific method always leaves open the possibility of failure. The scientific mind knows that experiments are really neither a success nor a failure; whatever happens just happens. So if a drive

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doesn't work, they will just buy another one and continue the experiment.

The boldness of Macintosh users to explore new flavors of storage was more difficult to explain. Perhaps, it was suggested, the same sensibility that leads people to the Mac makes them vulnerable to every new data storage device coming down the developmental path. This hypothesis suggests that Mac users are born, not raised.

The obvious solution would appear to be the historical need of Mac users for storage. The Mac has been (and still is) the computer for desktop publishing and graphics—applications with great storage requirements. Now that digital video has made a home on the Mac, the trend for more drives, tapes, and cartridges is growing more rapidly.

Stephen Howard, chair of the BMUG board of directors, and I mulled over this theory on our ride over to a BMUG West meeting. I pointed out that PC users seem to be more conservative about every component of their systems—with storage, software, printers, and networking. Was there some better explanation that would account for the differences between the communities?

Stephen came up with the answer—it's the interface, stupid!

The Bold And The Brave

The key must stem from users' experiences with the computer interfaces they've chosen. The interface is our intimate connection with a computer. That joining can be a loving one, or a rocky road.

The Macintosh interface is one of the most highly refined and developed in the world. It's not only maintained in the Finder, but is continued throughout the entire workspace of the machine. Users can expect a certain fundamental set of features, and a similar relationship to tools, menus, and every represented object they work with.

The design requirement placed on programmers is not merely to comply with an operating system and sets of protocols for proper functioning. A bomb is a bomb is a bomb, after all.

Programmers are directed by Apple's printed user interface guidelines to maintain the Macintosh "standard." Just as important, users make it known what they will tolerate in applications. Many a developer has been on the receiving end of an interface flame (harangue) at BMUG meetings. Fortunately, the interface isn't set utterly in stone and there seems to be a continual stream of improvements in systemware and applications.

Mac users love their computers—this is not a joke. They get the feeling that is unfortunately now being called "Zen," which is really the appreciation of real user-centered design. You're not only getting your work done, but the process and interaction with the device itself is satisfying. It's an aesthetic experience, but one contained totally within the person using the system.

Mac users are optimists. They expect things to work and be easy. Period. You want to set up a printer or a network? Plug them in, select them in the Chooser. Add a display or accelerator card? They work. It's easy.

In reality, it's not always that easy. But we Mac users have enough confidence in the foundation of the design that we clog our systems with all sorts of strange additions. On a deadline? Try out the latest and greatest extension or control panel. Why not?

The world is not as kind to PC users. They are more conservative because they are fundamentally suspicious of their computers. They expect for something to go wrong, or to be difficult. They have grown up with a chaotic hardware and software interface, with few standards. There's always an expectation of incompatibility between programs and hardware.

Although current Windows users may not be aware of it, they also live with the convoluted history and evolution of their platform. It's that darn DOS thing sitting in the background under all the windows, fonts, and icons.

PC applications and user interfaces still remember, in their code-based genetics, the not-so-distant time when PC applications didn't talk to each other. A time when the slightest change in a driver setting, or system configuration would bring everything grinding to a halt. A time when a simple installation could take just as long as trouble-shooting a complex problem. It seems as though it was yesterday. Hey, it was!

PC programmers also are used to an application-centric view of computing, where the niceties of the user interface and real-world expectations can take a back seat to the we-know-better-than-you engineers. The hardest thing for crossover PC programmers looking at the Mac for the first time is all the boundaries and limits. Programmers are control freaks (aren't we all, down deep) and are used to getting their way.

PC users owe a lot to the Macintosh. Whatever changes that have occurred on the PC side are a result of a trail blazed on the Mac. The recent "big news" that PC printers and other peripheral devices could now "talk" to attached computers was the laugh of the BMUG meeting. We've not forgotten that the whole concept of plug-and-play computing was introduced to the desktop world ten long years ago with the Macintosh.

Bytes And Pieces

Here are a few of the latest comings and goings-on around the Planet BMUG BBS:

• Sometimes you have to pay your dues to sing the blues, or perhaps wangle that plum programming job. But would anyone other than a twelve-year-old hack-meister junior-high student have the requisite experience, and be sucker enough, to respond to the following job offer posting floated over the Net?

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- *Quark XPress experience.*
- *Microsoft Windows experience (especially Internet apps).*
- *UNIX experience—BSDI, SGI IRIX preferred.*
- *Experience writing HTML; designing WWW documents; running gopher server.*
- *Text formatting experience.*
- *File format conversions on DOS, Mac, UNIX, Windows.*
- *Familiarity with MUDs, MOOs, Conferencing systems (such as the WELL, MindVox, FirstClass BBSs, USENET, America Online)."*

The *Wired* personnel department went on to say that they would only accept email resumes sent over the Net. "No snail-mail, fax, PostScript, *.pdf files or carrier pigeon submissions, please."

Please, indeed!

• **B(aby)MUG.** The baby boom continues at BMUG. A hearty welcome to Nathanial Bogar, the latest addition to our Rug Rat SIG. And hearty good luck and congratulations to the proud parents, Liesl and Robert, a BMUG board member!

Tip City

• **On Track.** The new BlackBird PowerBooks have a TrackPad, a novel kind of pointing device that replaces the trackball. It was code-

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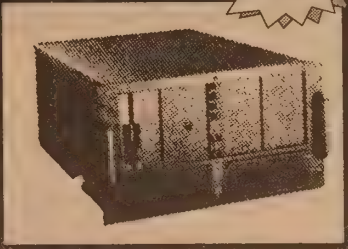

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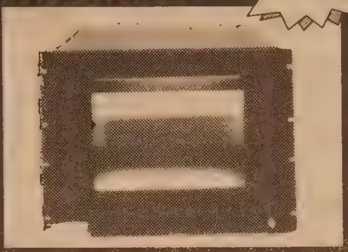

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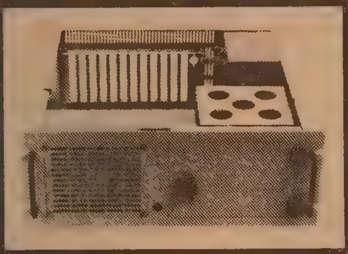

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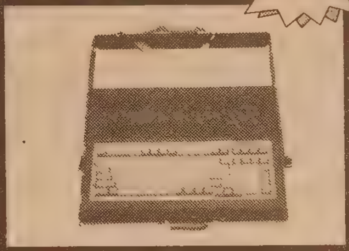

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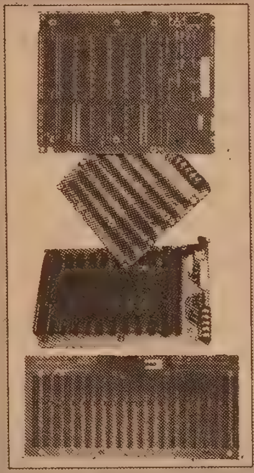

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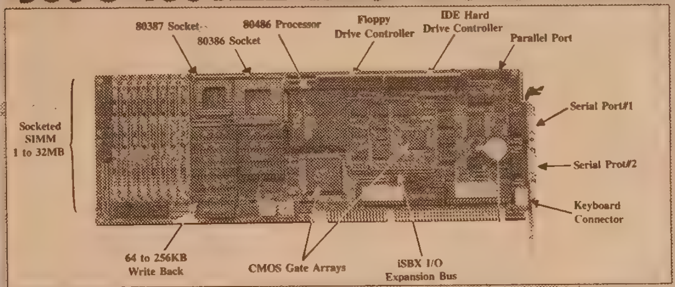

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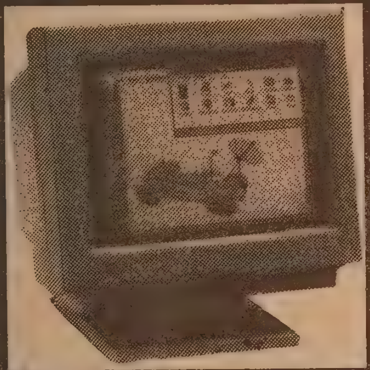

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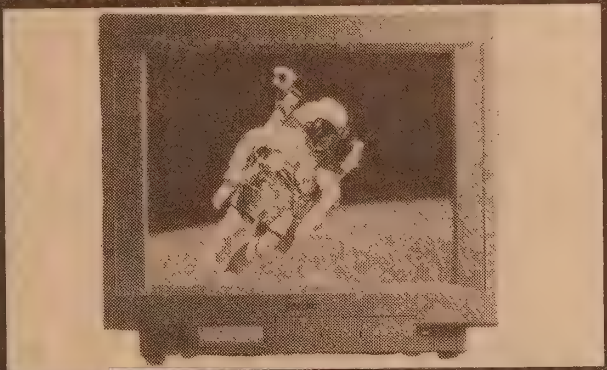

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named the Midas Touch. Very nice.

APS Technologies, the mail-order company, has come out with Tattoos, a $10 sheet of twenty plastic decals that fit on the TrackPad. There's a set of monthly calendars from 7/94 to 6/95, a peace sign, funny devil, and more. APS says that they are donating half of the profits to a Kansas City nonprofit group that supports low-income housing.

But there's a functional benefit of using the Tattoo decals, above and beyond the purely decorative one. It seems that occasionally sweat and moisture can interfere with the accuracy of the pad, causing it to skip a pixel every now and then. A thin overlay of plastic seems to help with this problem and doesn't affect its normal operation. Made out of 0.002-inch mylar, the Tattoos may do the trick.

- **The Enabled Mac.** About five years ago, I attended a local computer fair sponsored by Apple's Worldwide Disability Solutions Group. The show featured Apple and third-party products for the Apple II (remember this was long before the advent of a low-cost Mac) and Macintosh, as well as nonprofit groups that focus on disability computing. It was an exciting show, and the access technology has not stood still. There are now Mac products for users with almost every kind of physical, visual, hearing, or language disability.

Aisle 17 is Apple's new "community connection" or nationwide distribution channel for disability access hardware and software. They have a Shoppers Guide that describes Mac bundles and products. To get a copy of it phone 1-800-600-7808 (voice), or 1-800-755-0601 (TTY).

- **The Paper Case.** Although we all like to think that absolutely everything will be digital in the near future, there will still be plenty of paper in our lives. In the hidden (or not so hidden) corners of our houses and apartments are photos, newspaper clippings, and other ephemera. But if you want to keep these items in a reasonable condition, you have to take special care with them.

Light Impressions is a catalog filled with museum and library archival-quality materials to store and display your goodies. They have the best way to hold anything from baseball cards to film negatives, and stock certificates to the family hair-loom sweater. They even have a couple of archival holders for CD-ROMs.

The company's number is 1-800-828-6216 (voice) or 1-800-828-5539 (fax).

- **Power Programmers.** If you're interested in programming on the new Power Macs, you might wish to take a look at the *Power Macintosh Programming Starter Kit* by Tom Thompson. The book covers the basics of the new Mac RISC environment, and gives an overview of the run-time architecture, from code fragments to shared libraries. Included in the tome is a CD-ROM, with all programming examples discussed in the book, and a special version of Metrowerks CodeWarrior, which can be run on both the Power and 68K Macintosh.

The price is $30 (ten bucks off retail), plus $4 shipping and handling. The book can be conveniently ordered with Visa or MasterCard from the BMUG office by calling 1-800-776-2684 or (510)549-2684.

Shareware Spotlight

I love redundancy. The Mac is not a fascist—it gives you the ability to have the same thing in more than one way. You can launch a program or file from an icon, Apple menu, File menu, or an alias. There are even third-party interface add-ons that extend this ability.

OneClick! is a System 7 shareware application that lets you create palettes of icons. It's kind of like having extra desktop real-estate for more icons. The program has different viewing modes, so you can see them in "real" size or in miniature.

The palettes don't support drag-and-drop capabilities, so it's not a replacement for alias files. But it does have a SuperTile feature that can launch up to twelve different items with one click.

The author, Rick Christianson, is a student at New Mexico State U. and is asking for a shareware fee of $10. ■

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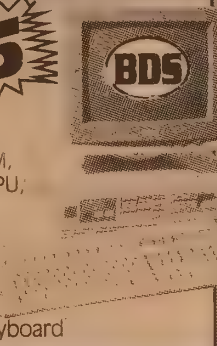

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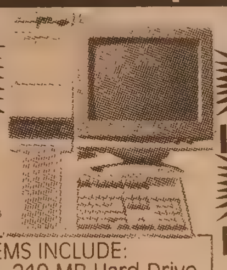

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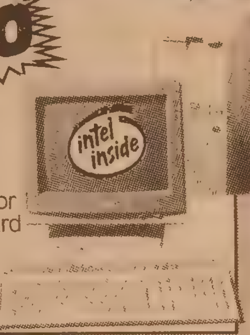

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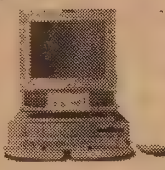

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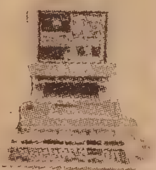

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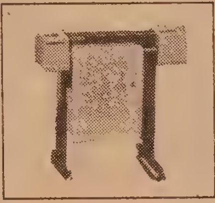

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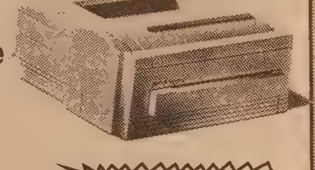

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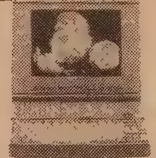

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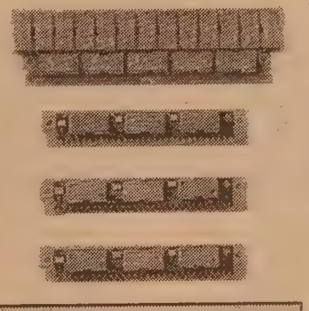

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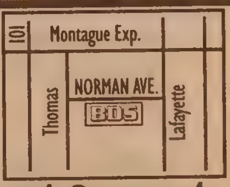

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BMUG CALENDAR OF EVENTS

July 7	Ray Dream *Ray Dream Designer 3D* (illustration software); Applee*World* (GUI online service). *Please Note: Meetings this month are in 145 Dwinelle Hall.
July 14	GHS/Sybex *Sybil Plus* (real-time MIDI); Claris *ClarisOrganize* (peek at new personal info manager).
July 18	BMUG South at 1922 The Alameda, United Way Office in San Jose. Connectix *RAM Doubler*; QuickMedia Labs *FotoAlbum* (digital photo archive service).
July 21	CCNet (Contra Costa Net) *Internet services*; Second demo TBA.
July 25	BMUG West at Exploratorium science museum in San Francisco. Adobe New Stuff; Second demo TBA.
July 26	Bell H.S. Video CD-ROM project (interactive QuickTime project from high school students); Second demo TBA.

Please Note: BMUG main meetings are held in 145 Dwinelle Hall on the UC campus (near University and Oxford). Call the BMUG Announcement Line at (510)849-9114 for the latest news on meetings, special interest groups (SIGs), and seminars. See you there!

WHAT IS BMUG?

BMUG is an educational, nonprofit, consumer advocacy group organized to share information and provide critical direction to users and developers in the computer community worldwide. It is an independent advocate, not affiliated with any manufacturer, delivering trustworthy information and useful products.

Like any growing organization, it is many different things to its fifteen thousand international members. BMUG supports many special interest groups (SIGs), 18-line Planet BMUG and 11-line BMUG Boston BBSes, a software library, weekly meetings, publications, and much more. BMUG also puts out a semi-annual 500+ page book that we call our "newsletter."

Our motto continues to be: We're in the business of giving away information.

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6:30 to 9:30 (or whenever we finish), on the UC campus. BMUG West and BMUG South are monthly meetings held in San Francisco and San Jose. Check the Announcement Line at (510)549-2684 ext. 8.

The BMUG Office, 2055 Center Street (a half block from the BART station) is open to the public 8:30 am to 4:30 pm. Please come by, say hello, and meet other members.

The BMUG HelpLine provides volunteer technical assistance and telephonic hand-holding for our members. If your question can't be answered on the spot, we try to get you in touch with someone who can help. Improve your Macintosh education and help others by becoming a HelpLine volunteer!

BMUG has one of the most up-to-date, comprehensive software libraries around, with hundreds of disks filled with the latest versions of public domain or shareware programs. BMUG also produces CD-ROM collections, including the digital video TV-ROM™ Too, and the BMUG PD-ROM.

Planet BMUG and BMUG Boston are graphical user interface FirstClass bulletin board systems, offering the latest in shareware, as well as news, private email, rumors, etc. With our 18-line capability, you can have access to BMUG almost twenty-four hours a day. It's easy to use, fun, and a great resource.

BMUG can be found on most online services, including e•World. BMUG can also be reached through the Internet network through UG0001@applelink.apple.com .

To get some further information about BMUG please write to: BMUG, 1442A Walnut Street, #62, Berkeley, CA 94709. If you prefer to phone our business office, call (510)549-BMUG, or fax (510)849-9026.

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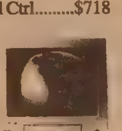

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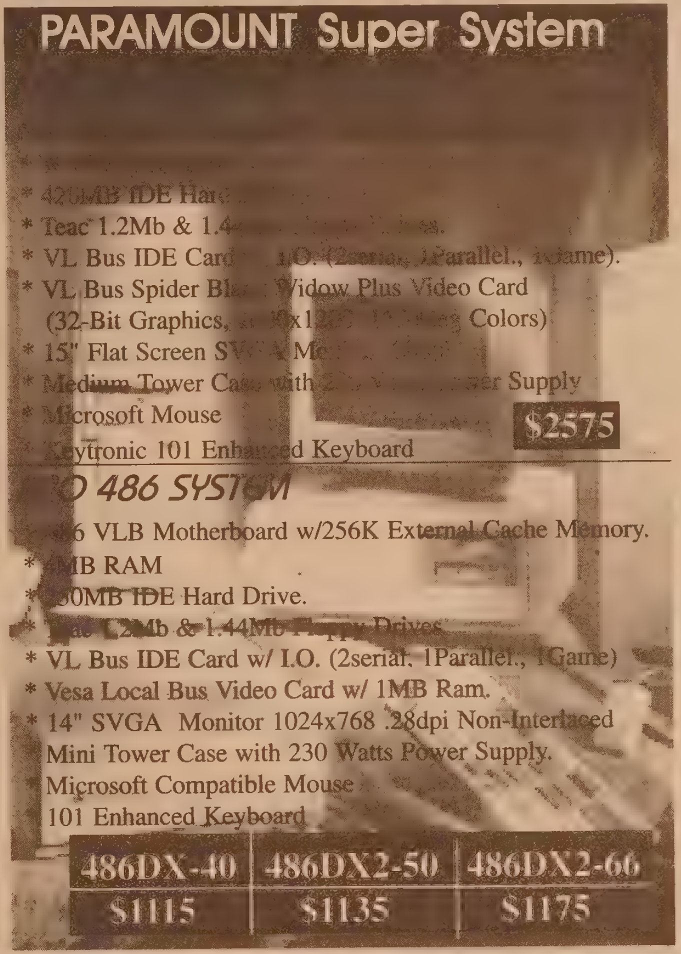

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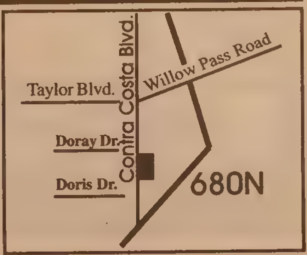

Fantasies *continued from page 27*

Soviet communism, pre-Thatcher English socialism, or jobs depending on the US Department of Defense.

I don't have the answer. But I do have the question.

Given that we can now produce far more than we need, by performing no more than part-time work:

How can we move from a market-based, consumption-based economy and consumption-driven psyche to a national and global well-being for ourselves and our children? How can we return our society to the belief that what is really important is each other? And, at the same time, avoid the functional dictatorship of oppressive bureaucracy and pervasive governmental intervention?

How can we return our society to the belief that what is really important is each other?

Trashing the video indoctrination machine is a needed first step—but I haven't been able to cut myself off from its nightly fix.

And reining in the outrageously arrogant and pompous examples provided by the power-mongers and glory-gluttons in political leadership is a much-needed step. But it is difficult to do (I have found)—most especially without being seduced into their destructive preoccupation with "winning." ■

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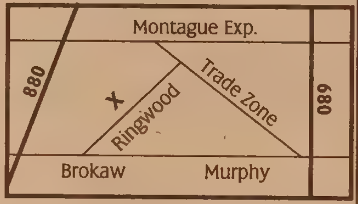

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540MB	IDE	7546A	8.5ms	1'x3.5"	363
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345MB	SCSI	7345S	15ms	1'x3.5"	330
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340MB	SCSI	340S	12ms	285
540MB	SCSI	540S	12ms	375
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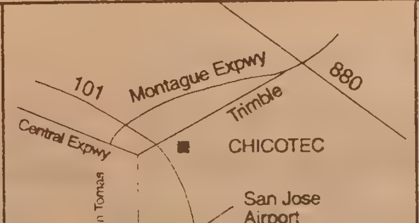

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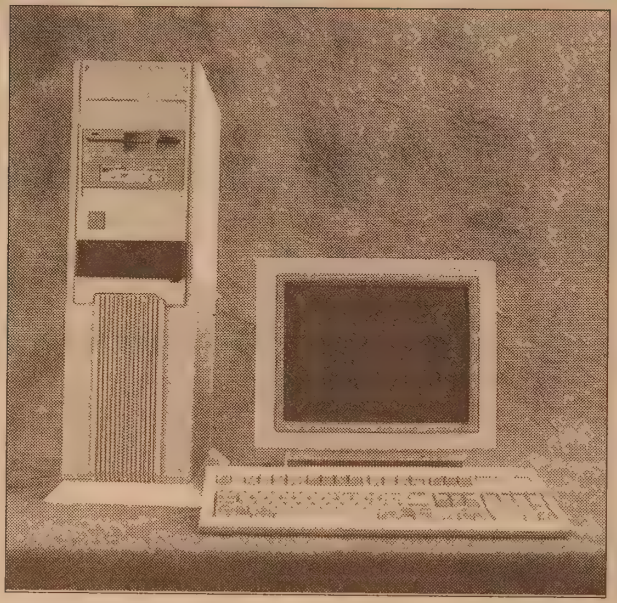

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- Intel Pentium 60MHz processor
- 512K Cache memory
- 4 32-bit PCI expansion slots
- Dual media floppy drive
- PCI IDE controller
- 2 serial, 1 parallel & 1 game port
- Medium tower case
- 101-key enhanced keyboard
- 1 year parts and labor warranty

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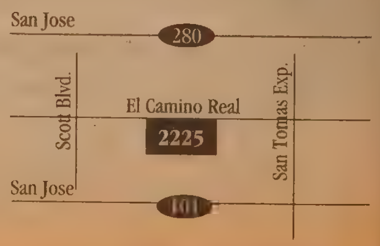
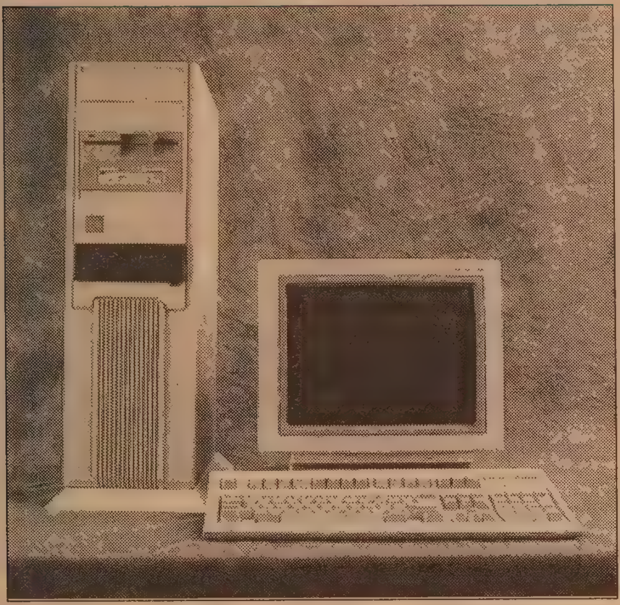


Leader in Advanced Technology!

ACT PENTIUM SYSTEMS



90MHz Pentium PCI/VLB

- Pentium PCI Motherboard
- 16MB RAM expandable to 128MB
- Intel Pentium 90MHz processor
- 512K Cache memory
- Dual media floppy drive
- 4 PCI, 2 VLB, 5 ISA slots
- PCI IDE Controller card
- 2 serial, 1 parallel & 1 game port
- Medium tower case
- 101-key enhanced keyboard
- 1 year parts and labor warranty

$2369

Controllers

ADAPTEC - SCSI Controller

1542C	Bus Master Complete Kit	$199.00
1542K	Fast SCSI-II VESA	299.00
1542CF	SCSI adaptor	209.00

BUSLOGIC

445S	SCSI Kit for VLB	275.00
542	ISA Kit SCSI-II	269.00

PCI SCSI	Controller 3805	129.00
PCI IDE	Controller 4308	39.00
VLB IDE	With 2S, 1P, 1G Controller	29.99
VLB IDE	With 16550 & Bi-directional	55.00
ISA IDE	With 2S, 1P, 1G Controller	19.95

90MHz Pentium VLB

- Pentium PCI Motherboard
- 16MB RAM expandable to 128MB
- Intel Pentium 90MHz processor
- 512K Cache memory
- Dual media floppy drive
- 3 VLB, 8 ISA slots
- VLB IDE Controller card
- 2 serial, 1 parallel & 1 game port
- Medium tower case
- 101-key enhanced keyboard
- 1 year parts and labor warranty

$2299

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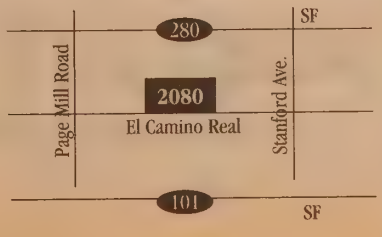

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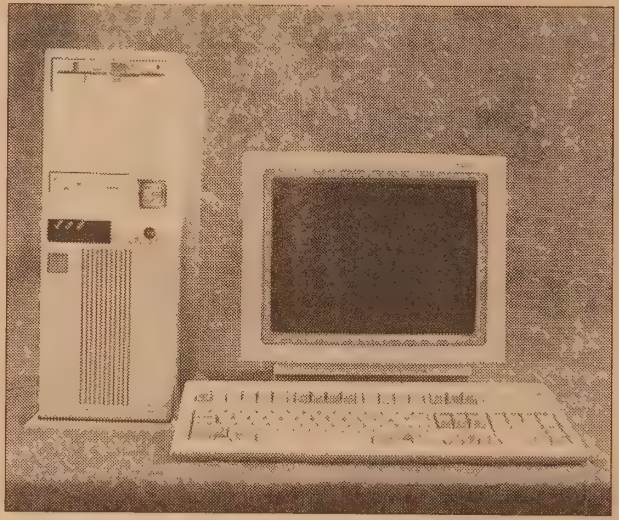
Complete & Affordable Systems

ACT AFFORDABLE COMPLETE SYSTEMS



GREEN 486DX-33 VLB

- 486DX-33MHz processor
- 256K Cache memory
- 4MB RAM expandable to 32MB
- Quantum 270MB IDE hard drive
- 3 32-bit VLB expansion slots
- Dual floppy drive
- VLB IDE HD/FD controller with 2 S, 1P & 1 G port
- Trident 9200 VLB SVGA card
- 14" Impression SVGA monitor
- Medium Tower case
- 101-key enhanced keyboard
- 1 year parts & labor warranty

$1269

Hard Drives

CONNER			
213MB	CF210A	14ms	$169.00
340MB	CFA340A	13ms	259.00
1.08GB	CFA1080A	18.5ms	699.00
MAXTOR			
340MB	7345A	14ms	249.00
540MB	MXT540A	8.5ms	359.00
540MB	MXT540S	SCSI	449.00
QUANTUM			
170MB	LPS170A		169.00
270MB	LPS270A		219.00
340MB	LPS340A		249.00
540MB	LPS540AT	3.5x1	379.00
540MB	LPS540S	SCSI	399.00

Motherboards

ALARIS
- VLB w/ 128 Cache
- CPU & coprocessor
- 16K internal cache

Manufactured by IBM with 3 year warranty!

486SLC2-66, 26.2 MIPS	$269.00
386DX-40MHz	89.00
486 Motherboards	
ISA with 64K Cache	59.00
ISA with 256K Cache	99.00
Green VLB with 256K Cache	129.00
ALI Green PCI/VLB with 256K Cache	189.00
ZIF Genoa VLB with 256K Cache	149.00
PENTIUM w/ 512K Cache	
60MHz VLB	339.00
66MHz PCI	429.00
90MHz VLB/ISA	499.00
90MHz PCI/VLB	499.00

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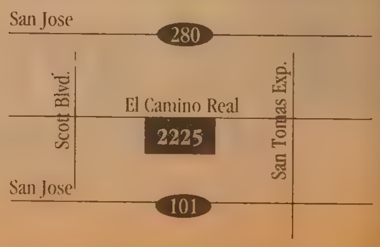
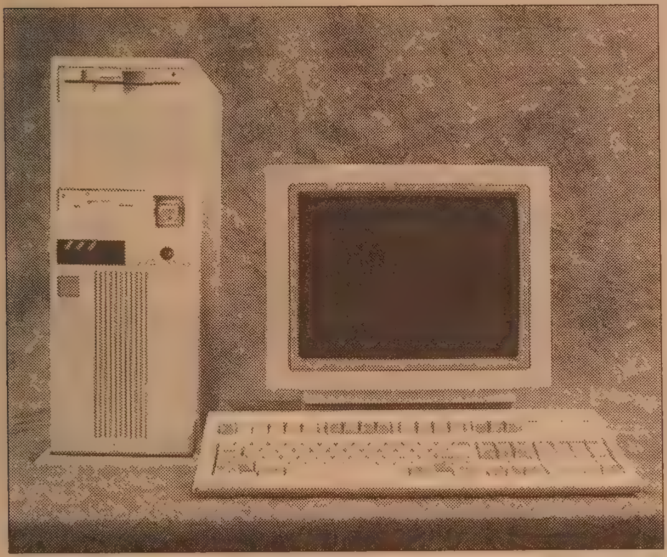


Provider of Top Quality Products!

486 VESA LOCAL BUS SYSTEMS



Green VESA Local Bus

- Green VLB Motherboard
- 4MB RAM expandable to 32MB
- AMD DX2-66MHz processor
- 256K Cache memory
- 3 32-bit VLB expansion slots
- 3.5" 1.44MB floppy drive
- VLB IDE HD/FD controller
- 2 serial, 1 parallel & 1 game port
- Supports up to 32MB RAM
- Mid Tower w/ power supply
- 101-key enhanced keyboard

$777

Video Cards

ATI		
Ultra Pro	2MB VLB	$289.00
Ultra Pro	2MB PCI	299.00
Ultra Turbo	2MB VLB	399.00
Ultra Turbo	4MB VLB	599.00
Ultra Turbo	4MB PCI	599.00
DIAMOND		
SpeedStar Pro	VLB, 1MB	119.99
Stealth 24	VLB, 1MB	139.00
Stealth Pro	1MB VLB/2MB	259.00/319.00
Viper	2MB PCI	439.00
Viper	2MB VLB	339.00
ORCHID		
Celsius	2MB VRAM VLB	199.00
GENOA		
8500 VL Turbo VLB 1MB		109.00

GENOA VESA Local Bus

- GENOA 486VL Motherboard
- 4MB RAM expandable to 32MB
- AMD DX2-66MHz processor
- 256K Cache memory
- 3 32-bit VLB expansion slots
- 3.5" 1.44MB floppy drive
- VLB IDE HD/FD controller
- 2 serial, 1 parallel & 1 game port
- Supports up to 32MB RAM
- Mid Tower with power supply
- 101-key enhanced keyboard

$799

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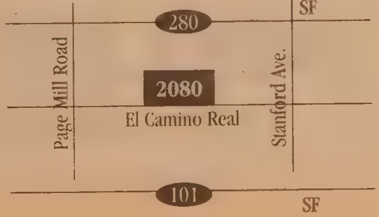

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Authorized NEC Sales Center

NEC Versa E Notebooks...

$200.00 Instant Rebate!*

- 486DX motherboard
- 4MB RAM Expandable to 20MB
- Removeable/Reversible Screen
- Removeable hard drive
- 2 PCMCIA Type II slots
- MS-DOS & Windows & built-in mouse

486DX2-40MHz
- 250MB hard drive
- Active Matrix color screen

$3799*

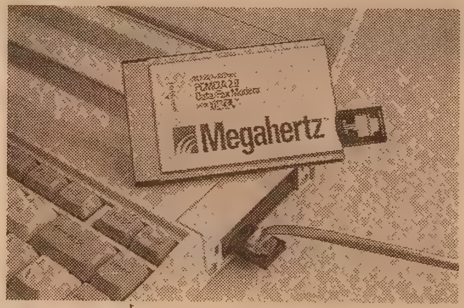
486DX2-50MHz
- 209MB hard drive
- Active Matrix color screen

$3999*

486DX4-75MHz
- 340MB hard drive
- Active Matrix color screen

$4999*

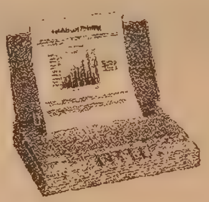
**Advertised price includes rebate, selected color models, ends 7/31/94*



MEGA-DEAL...
From Megahertz CORPORATION

PCMCIA Fax Modem

2496	$89.00
XJack 1144	199.00
XJack 2144 Gold	269.00

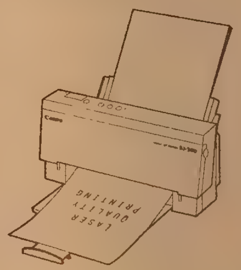


Canon
BJ-10ex Portable Inkjet

- Prints up to 84cps
- Weighs only 4 lbs.
- 90-day Warranty

$149* ** Refurbished Printer*

Canon
BJ-200 Inkjet



- Prints up to 248cps
- 100-sheet feeder
- Optional ASI
- 90-day Warranty

$199* ** Refurbished Printer*

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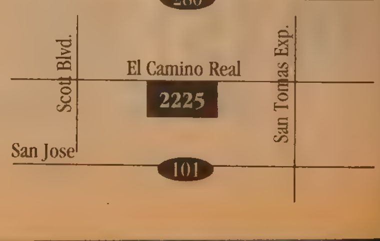
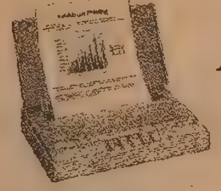


Authorized Canon Sales & Service

$30 Rebate*... on Printers & Peripherals!

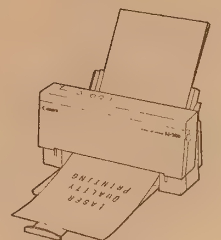


BJ-10sx Portable Bubble Jet Printer

- Prints 30% faster than 10ex
- Weighs 10% lighter than 10ex
- Text graphics up to 360dpi
- Uses plain paper & transparencies
- 2 year warranty

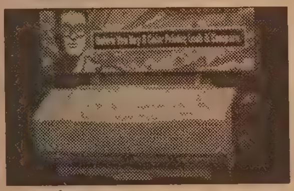
$219*

BJ-200e Ink Jet Printer



- 360dpi resolution
- Prints up to 248cps
- 100-page sheet feeder
- 7 resident fonts
- Hold up to 10 envelopes
- 2 Year Warranty

$249*

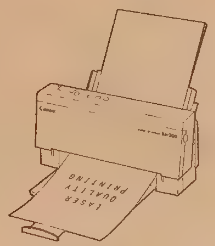


BJC-600 Color Ink Jet Printer

- 360 dpi
- 100-sheet ASF
- 240cps draft, 170cps high quality
- 16.7 million colors available
- 64 nozzles per color
- 2 year warrnaty

$549*

BJ-100 Inkjet Printer



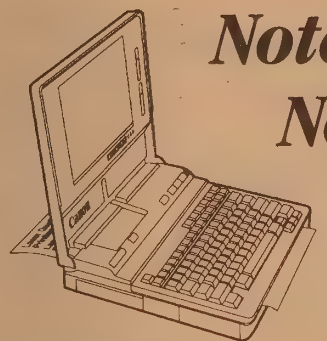
- 140cps, 120cps
- 360x360 resolution
- 64 nozzles print head
- 100 sheet paper tray
- 2 year warranty

$239*

*$30 end-user rebate on selected models, thru 8-31-94

Canon

Note Jet Color Notebook



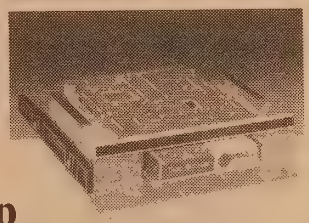
Notebook and Printer All-in-One!

- 486SLC-25 MHz
- 4MB exp to 12
- 120MB HD
- Built-in BubbleJet Printer
- 2 PCMCIA II slots
- DOS, WIN, hand-held trackball

$2299

With 200MB Hard drive $2599

COLORADO MEMORY SYSTEMS INC.



DJ-20 250MB Tape Backup

- Internal
- Runs off floppy port
- Uses 2120 tapes

$149.99

JT-20 250MB External Trakker $299.00

3M

DC2120
Tape Cartdrige
HTT2120

$10.99

3.5"

Formatted Diskettes
Sold in box of 25
XDM325

29¢ ea.

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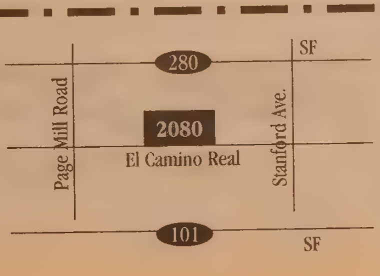

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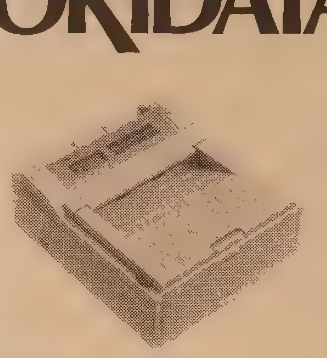
Complete Printer Source Center

OKIDATA®



OL-400e LED Page Printer

- Compact Size and sleek design fits comfortably on any desktop
- Fast 4ppm printing with RISC microprocessor for higher productivity
- 44 fonts for great-looking correspondence and reports
- Perfectly compatible with virtually all software applications

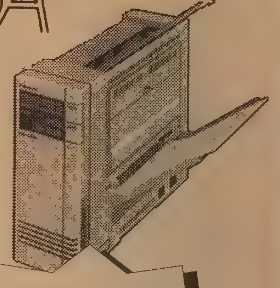
$479

OL410e

- 600 dpi resolution
- 4 ppm

$685

Panasonic
Office Automation



KX-P4400 SideWriter Laser

- 4ppm
- 512K memory
- 300dpi resolution
- 100-sheet multi-purpose tray
- HP IIP emulation
- 1 year warranty

*$50 rebate and Free Toner**

$449*

KX-P5400

- 4ppm
- Postscript

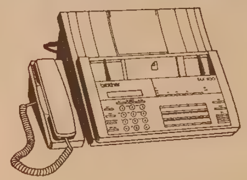
$100 rebate and Free Toner

$749*

* *enduser rebate thru 9/30/94*

brother We're at your side.

FAX-400
Fax Machine



The No-Curl Fax Machine!

- 20-page feeder
- Giant 164" paper roll
- Password Plus
- Call reservation with callback message

$299

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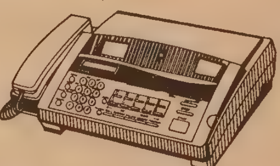
No-Curl!

780MC Plain Paper Fax Machine



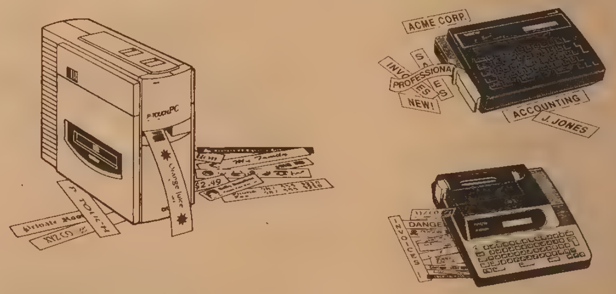
- Receives up to 50 pages in memory
- Auto 15 page feeder
- 16-digit LCD display
- Built-in answering machine

$459

brother We're at your side.

P-Touch Professional Labeling System

- Creates customized adhesive-backed label
- Different size tape from 1/4" to 1"
- Prints English or Spanish
- Battery operated or AC adaptor



PT-12	$124.00
XL-30 Prints Bar Code	$189.00
XL-35 With Case	$229.00
P-Touch PC	$249.00

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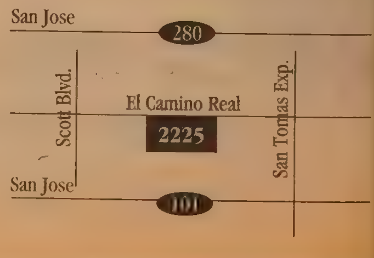
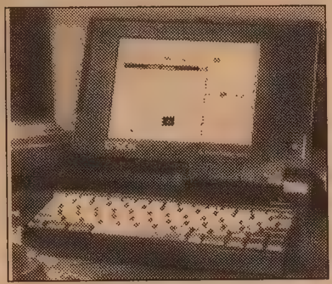


EPSON®

WHEN YOU'VE GOT AN EPSON,
YOU'VE GOT A LOT OF COMPANY™

ActionNote 500C Color Notebook

Color!



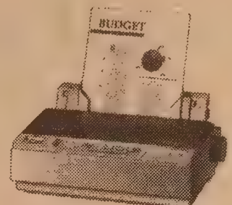
- 486 SLC-50MHz processor
- 4MB RAM expandable to 8MB
- 180MB IDE Hard Drive
- Passive matrix color display
- Built-in modem only
- 1 year road-site warranty

$1899

With 120MB HD..................$1799

Free!

*6" Printer Cable with EPSON printer purchase**



LX-300	$169.00
LQ-570+	$249.00
FX-870	$279.00

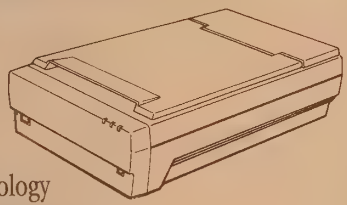
** on above printers only, no substitution, XCA006, limited to stock on hand*

Stylus 300 ***Inkjet***	$239.00
Stylus 800 ***Inkjet***	$289.00
DFX5000 ***high speed***	$1350.00
DFX8000 ***high speed***	$2299.00
ActionLaser 1000 ***Laser***	$599.00
ActionLaser 1500 ***Laser***	$678.00
Action Laser 1600 ***Laser 600dpi***	$995.00

PCMCIA Cards

1MB SRAM	$169.00
2MB SRAM	$269.00
2.5MB ATA Flash	$289.00
5MB ATA Flash	$349.00
10MB ATA Flash	$529.00
20MB ATA Flash	$899.00

ES-600C Color Scanner

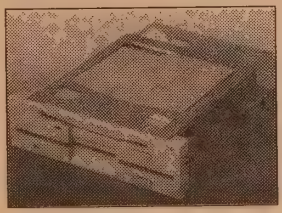


- 24-bit color, 8-bit greyscale
- Output 50-600dpi resolution
- Exclusive TruePass™ technology
- Built-in imaging procesing features:
  - brightness
  - gamma
  - color correction
- Available for PC or Mac

DME600 **$795**

Dual Floppy Drive

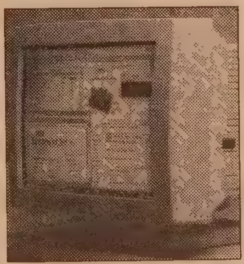
Limited Drive Bay Solution!



- 5.25" and 3.25 in one
- 42.8mm height
- 500Kbit/sec tranfer rate

$79.99 DFS0305

14" SVGA Monitor



- 14" SVGA monitor
- 1024x768 resolution
- .28mm dot pitch

MTE14 **$219**

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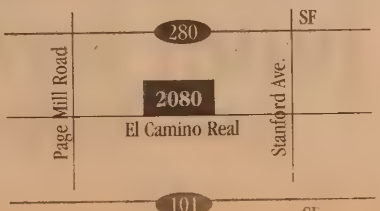

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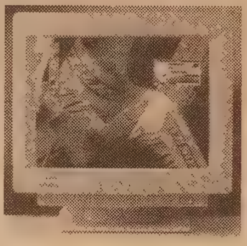
Complete Computer Source

HITACHI NSA
NISSEI SANGYO AMERICA, LTD.

SuperScan™ Monitors



Elite 17
energy EPA POLLUTION PREVENTER

- 17" flat display
- 0.26mm dot pitch
- 1600x1200 max resolution
- Vertical refresh rate at 50-120Hz

$1049

SuperScan 15s
energy EPA POLLUTION PREVENTER

- 15" flat square display
- 0.28mm dot pitch
- 1280x1024 max res.
- Vertical refresh rate 50-120Hz

$449

SuperScan 17s
energy EPA POLLUTION PREVENTER

- 0.31mm dot pitch
- 1280x1024 max resolution

$888

ATI TECHNOLOGIES INC.
Perfecting the PC

Graphic Ultra Pro

- 2MB VRAM VLB
- Non-interlaced 1280x1024
- Multiple Bus support
- 76-Hz flicker-free display

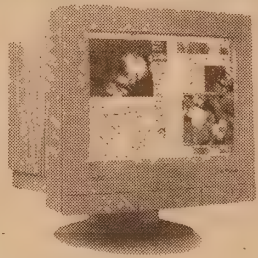
$299

Graphics Pro Turbo, 64-bit

New!

2MB	VLB	$399
4MB	VLB	$599
4MB	PCI	$599

NEC



MultiSync Monitor 3V

- 15", .28mm flat square CRT
- 1024x768 at up to 60Hz
- Energy Star compliance
- 3 year warranty

$469

Professional Series

5FGp	17" 1024 .28	$1129.00
6FGp	20" 1280 .28	$1999.00

Business/Home Series

2V	14" 1024 .28	$339.00
3FGe	15" 1024 .28 60Hz	$529.00
4FGe	15" 1024 .28 76Hz	$629.00
5FGe	17" 1024 .28	$949.00

DIAMOND
Computer Systems, Inc.

VIPER

2MB VRAM VLB	$339.00
2MB VRAM PCI	$439.00

STEALTH PRO VLB

1MB	$259.00
2MB	$319.00

SPEEDSTAR PRO

1MB DRAM	$119.99

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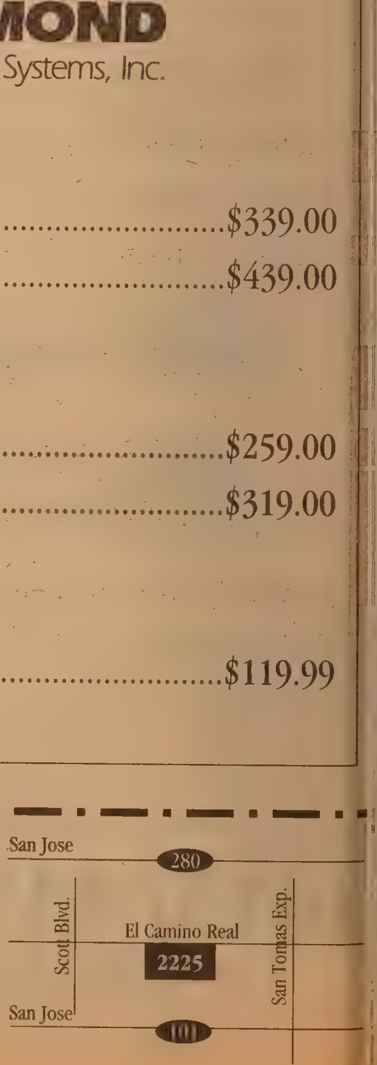


Complete Communication Source

USRobotics
The Intelligent Choice in Data Communications

Sportster Modems

The 14.4 Fax Modems

- Internal PC version
- V.42/MNP5
- Easy installation
- 5 year limited warranty

$99.99

External	129.99
Mac & Fax Ext	149.95

AC Line Conditioner

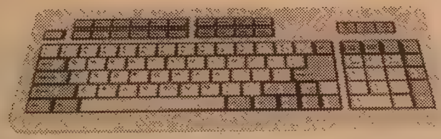
Eliminates Surges & Spikes... with clean, steady power level

300VA	$29.00
500VA	$59.00
1000VA	$69.00

Computer Cases

AT Full Size Desktop	CAS214	$39.99
Baby Desktop	CAS200	$59.00
Mini Tower w/ 200W	CAS3201B	$39.99
Medium Tower w/ 230W	CAS8922D	$69.00
Full Tower w/ 230W	CAS320	$89.00
Super Tower w/ 300W	CAS320S	$149.00

Keyboards



NMB 101 Key w/ PS/2 connector	15.00
ACER 101-key	19.99
MITSUMI 101-key	29.00
KEYTRONIC 101-key	39.00
MAXISWITCH Pro-II 124-key Programmable	69.00
PROXELLENT ProX-121 Programmable	69.00
FOCUS	
8000 101 Key w/ Calculator	49.00
2001 101 Key w/ Calculator	45.00
9000 129 Key w/ Calculator, Programmable	59.00
NORTHGATE	
OnmiKey 101-NI/102	$89.00
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NETWORK

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EtherLink III-3C509 10baseT or Coax	$119.00
EtherLink III-3C509 Combo Card 16-bit	$129.00
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Ethernet Express	
16-bit, Coax Cards or 10baseT Cards, single	$109.00
SMC	
Elite Ultra Line/Ethernet	
16-bit, Coax or Board Twisted Pair, single	$109.00
Novell	
NE2000 Plus 16-bit Coax, single	$109.00
NE2000 Plus 16-bit Twisted Pair, single	$103.00
NE2000 Plus Combo, single	$133.00

Ver	5 users	10 users	25	50	100	250
3.12	$599	1349	1999	2699	3799	6499
4.01	$799	1749	2459	3499	5299	9659

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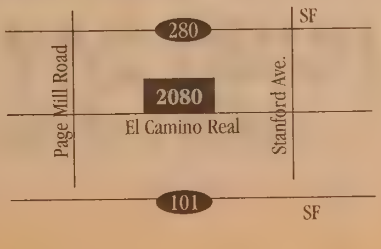

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Pro Deluxe Multimedia Kit

Featuring NEC 3Xi Triple Speed CD-ROM Drive, 3D Sound Card and 15 popular CD-ROM Titles!

The Latest & Greatest of Multimedia!

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- 16-bit 3D Sound Card
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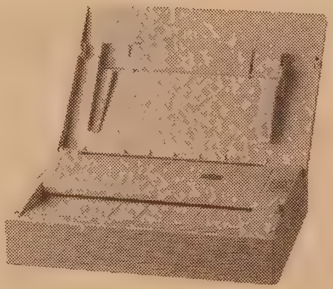
- 15 CD Title software

HDM4000 **$529**

BTC



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Hi-Resolution Gray Scale Scanner with 10-page auto document feeder

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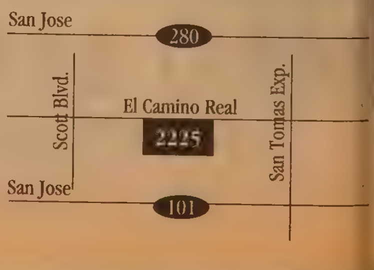

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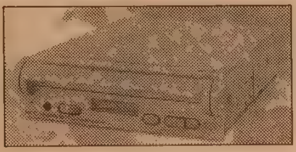
NEC



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3xi, internal	$388
3xe, external	$469

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The complete accessories kit with the 10 Most Popular Game Titles:

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- 10 CD game titles
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Play Computer Games on your TV!

TV Gamer Plus

- Supports up to 24-bit true color
- Use for Business presentation
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- 5 year/limited warranty

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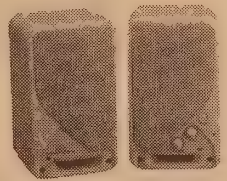

CS150	$\$18^{99}$	SS700	$\$29^{99}$
CS180	$\$21^{99}$	CS1000	$\$69^{99}$
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Cleans: Monitor, Keyboard, printer, drives $\$4^{99}$

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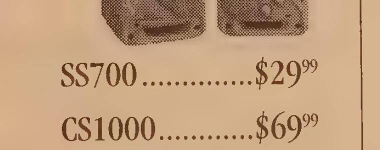

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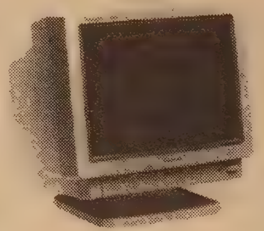
Panasonic Office Automation OA



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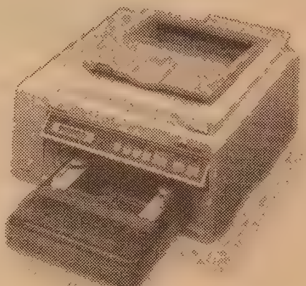
- 14" Multisync
- 1024x768 resolution
- .28mm dot pitch

** refurbished monitor*

$229*

Panasonic Office Automation OA



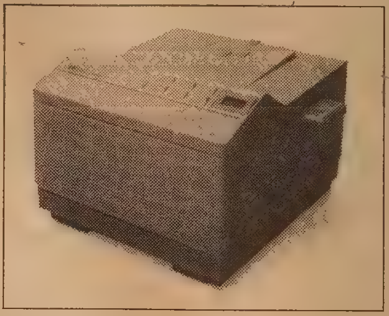
KX-P4410

- 5 ppm
- HP IIP emulation
- 512K exp to 4.5MB
- 200-sheet multipurpose tray
- 1 year warranty

** 2nd Inventory Printer*

$399*

HEWLETT PACKARD



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4	$1377.00	4L	$666.00
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4M+	$1999.00	4+	$1399.00

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310 Portable	$299.00	560C	$569.00
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SONY

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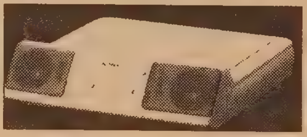

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- 3 year warranty

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- 16-bit stereo sound card
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- Energy Star compliant

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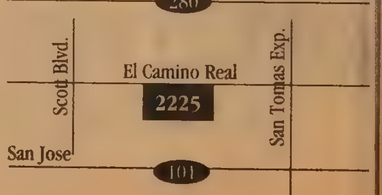

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Creative Labs	
Edutainment CD 16 ADS120	$359.00
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Toshiba Double Speed HDT34011	$299.00
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Media Vision	
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Earphones ADS801	$4.99
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KX-T3910 Cordless PHP3910	$109.99
KX-T3705 Cordless PHP3705	$69.99
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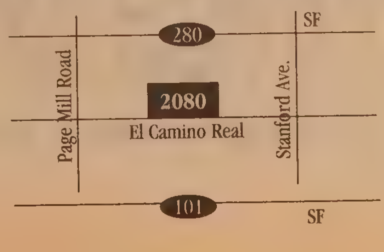

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Created for notebook and desktop computers, the Microsoft Ballpoint mouse has a revolutionary design that's ideal whenever space is at a premium. Set it next to your keyboard and get the same high resolution performance as the best-selling Microsoft Mouse.

Microsoft® BallPoint Mouse

Meet an exciting member of the Microsoft family: the Microsoft Ballpoint mouse. Like the popular Microsoft Mouse, it has an efficient ergonomic design, adjustable acceleration and sensitivity, 400-points-per-inch resolution for pinpoint control, and support for hundreds of applications.

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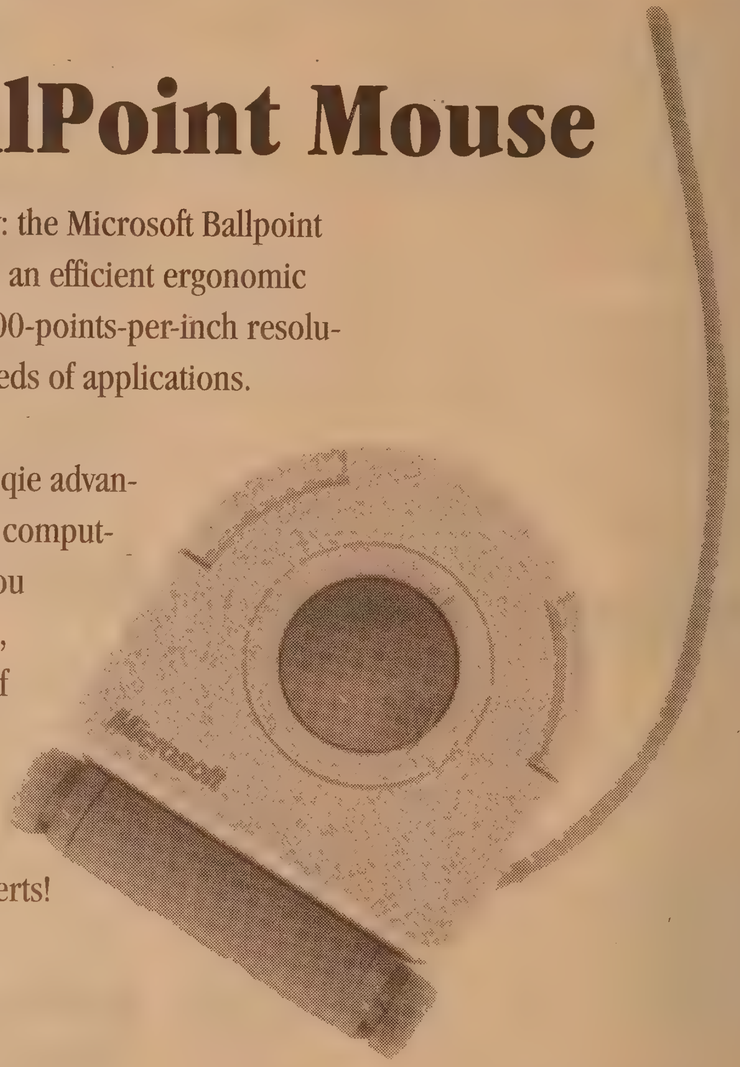
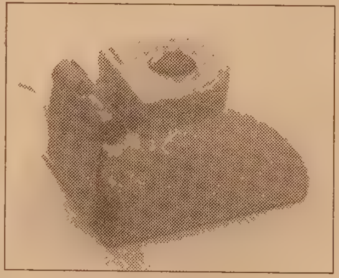
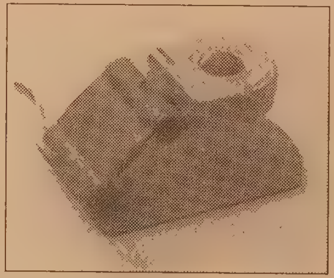
The Microsoft Ballpoint mouse: It's a sensational innovation from Microsoft, the mouse experts!



Ready...



Tilt...



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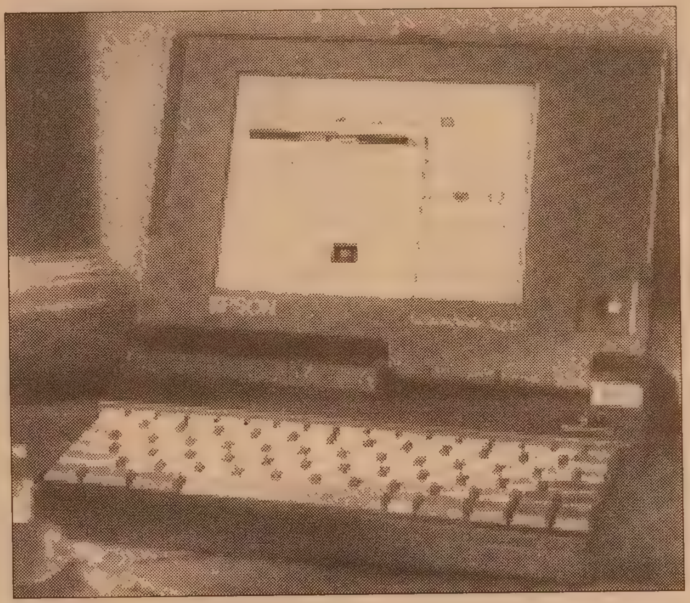

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80287XL 12 MHz (Laptop)	69
80287-10 10 MHz	35
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80C387SX-33	69
8C387DX-20	59
8C387DX-25	59
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4-12 MB Exp Brd	239
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1 MB Module	89
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1-9 MB Exp Brd	159
4-12 MB Exp Brd	240
DeskPro 286N, 386N, 386SX/20	
2 MB Module	75
4 MB Module	175
DeskPro 386N, 386SX/20	
2 MB Module	118
DeskPro 286N, 386N	
0-4 MB Exp Board	175
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2 MB Kit	99
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2 MB Module	99
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4 MB Module	159
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2 MB Card	99
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4 MB Card	215
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4 MB Card	215
Mdls 90; 95	
2 MB Module	159
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2-8 MB Exp Brd	275
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T3100e	512K Card	CALL
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T3200SX	2 MB Card	125
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T3200	3 MB Card	175
T1000SE; XE	1 MB Card	119
T5100	2 MB Card	129
T5200: 8500	2 MB Card	125

STATIC ZIPPS

1x4 70ns DIPP TC514400AP	$45.00
256x16-70/80 Zipp for HP/Packard Bell	29
Video Zipps D42274V-08/07 TC524256Z	7.00

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32x8-25	$6.95	8x8-20	$3.75
32x8-20	5.25	8x8-25	2.25
32x8-15	7.95	8x8-15	3.99
32x8-12	CALL	16x4-25	2.25
64x4-25	6.00	16x4-20	3.75
64x4-20	7.00	16x4-15	4.50
64x4-15	10.00	128x8-25	32.50
64x1-20	6.75	128x8-20	CALL
64x1-15	8.50	128x8-15	CALL

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4MB 1x36-80ns	159
4MB 1x36-70ns	169
8MB 2x36-80ns	299
8MB 2x36-70ns	305
16MB 4x36-70ns	645
16MB 4x32-70	569

COMPAQ MEMORY

Model	P/N	
LTE 286		
1 MB	117081-011	$89
2 MB	117081-002	125
4 MB	117081-003	219
SLT 286		
1/4 MB	110237-001	99/259
LTE 386S/20		
2 MB	12125-001	129
4 MB	121125-002	225
Contura Lite 20/25		
2 MB	129769-001	125
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Portable 386		
1 MB	107651-001	125
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2 MB	10-7332-001	125
EBD	167811-001	225
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Deskpro 386S (E. Board)		
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4 MB	112534-001	189
Deskpro 386/33L, 486/33L, 50/25		
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8 MB	116561-001	365
32 MB	116568-001	1475
6 Socket E Board		CALL
Deskpro 386/20e, 25e (E. Board)		
4 MB	113645-001	249
Deskpro 386/20,20e,25e		
4 MB	113132-001	199
Deskpro 286N, 386N, 386SX/20, 386/25M, 486/33M, 486S/25M, 486S/16M		
2 MB	118689-001	189
4 MB	118690-001	345
8 MB	128877-001	315
Deskpro 486/33L, 486/50L, 386/33L		CALL
Prolinea 3/255 & 3/252S		
2 MB	141738-001	135
8 MB	141742-001	315
Prolinea 4/33		
2 MB	141682-001	125
4 MB	141684-001	189
8 MB	141685-001	345
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PS/1 Consultant Essential/Expert	1/2/4/8 MB	79/99/189/320
386 Valuepoint	2/4/8 MB	99/179/325
486 Valuepoint	4/16 MB	189/595
PS/2 30-286	2 MB	99
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70A21, A61, 121	2 MB	135
80-11, 121, 311	4 MB	245
95,90,P75, PS/1 Pro	2/4/8 MB	135/129/335
16 Bit Exp Bd For 50, 50Z, 60, 65SX	0K	179
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RISC 6000	16/32/64 MB	745/1490/2890

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4019/4019E 1/2/3.5 MB	$89/139/189
4029 (All Model) 4 MB	189
EPSON LASER	
6000-2/4MB	$157/243
7000-2/3 MB	145/189
Action LaserII -2/3/4/5 MB	125/149/200/289
HP LASER	
HPII/IID 2/4 MB Board	$125/220
HP 4/4M 4/8MB	179/369
HP IIP,IIP+,III,IIID, IIIP 1/2/3/4	89/135/159/220
IIsi 4/8 MB	179/299
DeskJet 500/500c 550C 256K	89
Design Jet Plotter 4 MB	155
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KXP4410/KXP4430 1/2/3/4 MB	$100/150/175/225
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PS 410 2/3/4 MB	$119/165/189
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PS 815, 825, 815MR, 2/4/6	168/232/295
SHARP LASER	
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JX-9500/9700 1/1.5/2.5/4	105/135/188/344
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Apple Laserwriter II/IINT/IINTX 4 MB	$149
Brother HL-4 2/3/4 MB	119/165/189
Brother HL-8E V 1/2 MB	99/139
Compaq Pagemarq 15 & 20 1/4/8	49/139/266
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Kyocera F800, F800Am F800T 2/4	95/137
NEC Silentwriter 90/290	99/124
NEC Silentwriter 95 2 MB	104

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To Be At Liberty

continued from page 32

tion unfiltered by the needs and desires of either Big Brother or the Marketing Department down at Channel Six.

Such a medium may be spreading across the planet in a thickening web of connected computers called the "Internet." Through the Internet I can already get a personal connection with people all over the globe, learning from those on the scene what's really going on. Through the Internet I can publish my own understandings to whomever might be interested, in whatever numbers.

During the War in the Persian Gulf, I was able to get minute by minute reports from the laptop computers of soldiers in the field. The picture they presented felt far more detailed, more troubling and ambiguous, than the mass hallucination presented on CNN.

The Internet is also creating a new place...many call it Cyberspace...where new communities like Pinedale can form. The big difference will be that these Cyberspace communities will be possible among people whose bodies are located in many different places in the world.

Direct communication should breed understanding and tolerance. Our fears will be far easier to check out. We may begin to understand that these distant and sometimes alien creatures are real people whose rights are directly connected to our own.

I imagine the gathering places of Cyberspace, some as intimate as reading Pinedale's Wrangler Cafe, some more vast than Tienanmen Square. I imagine us meeting there in conditions of trust and liberty that no government will be able to deny.

I imagine a world, quite soon to come, in which ideas can spread like fire, as Jefferson said, "expansible over all space, without lessening their density at any point, and like the air in which we breathe...incapable of confinement or exclusive appropriation by anyone."

If ideas can spread like fire, then freedom, like water, will flow around or over those that stand in its way. In Cyberspace, I hope that this truth will be self-evident. ■

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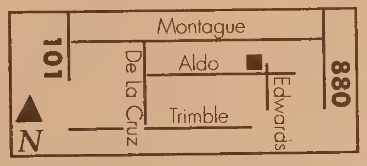

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Palmtops *continued from page 50*

Apple Upgrades The Newton

The new Apple Newtons (the MessagePad 110) have a variety of enhancements to their ROMs which improve their user interface. Owners of older Newtons can upgrade their machines to the new operating system, v1.3, for $99.

The enhancements include deferred handwriting recognition (being able to take notes in electronic ink so you can recognize the handwriting at a later time, when it is more convenient), and letter-by-letter recognition, allowing you to turn off whole-word recognition and recognize the handwriting one letter at a time.

Both of these features should improve the usability of the Newton. Deferred recognition is particularly useful when you're trying to take notes quickly, and don't want to deal with the recognizer. Letter-by-letter recognition would be handy when writing down proper names and addresses unlikely to be recognized easily by the whole-word recognition techniques (unless the proper name was in your dictionary already).

CompuServe's Magic Genie

Despite the confusing name, Magic Genie is software which runs on the Motorola Envoy (as mentioned above, a Magic Cap-based personal communicator) to access CompuServe Information Services (rather than, as you might expect, Genie, a well-known competing information service).

The software uses Telescript to gather information from various information services on CompuServe. For example, you can use the agent to request stock information updates, weather forecasts, news, and email. The software, developed by River Run Software Group, was designed to be extensible, allowing new add-ons to give access to additional CompuServe services.

Drawing Package For The Motorola Envoy

Driftwood Systems has announced a drawing package for the Motorola Envoy which allows the user to input a drawing in messy electronic ink and have it automatically "cleaned up." The system uses a fuzzy logic engine to recognize shapes, and the application is integrated with other applications in the system, allowing you to use it easily to supplement a text with drawings.

In addition, since the shapes are stored in a more compact format than electronic ink, this can reduce the size and therefore cost of messages sent across wireless networks. ■

RESOURCES

Apple Newton
Apple Computer
(408)996-1010

Magic Cap and Telescript
General Magic
2465 Latham Street
Mountain View, CA 94040
(415)261-3860

Magic Genie
River Run Software
(203) 861-0090

Motorola Envoy
Motorola, Inc.
1-800-535-5775

Tangent drawing package for the Motorola Envoy
Driftwood Systems, Inc.
2361 214th Pl. S.W.
Brier, WA 98036
(206)775-6495

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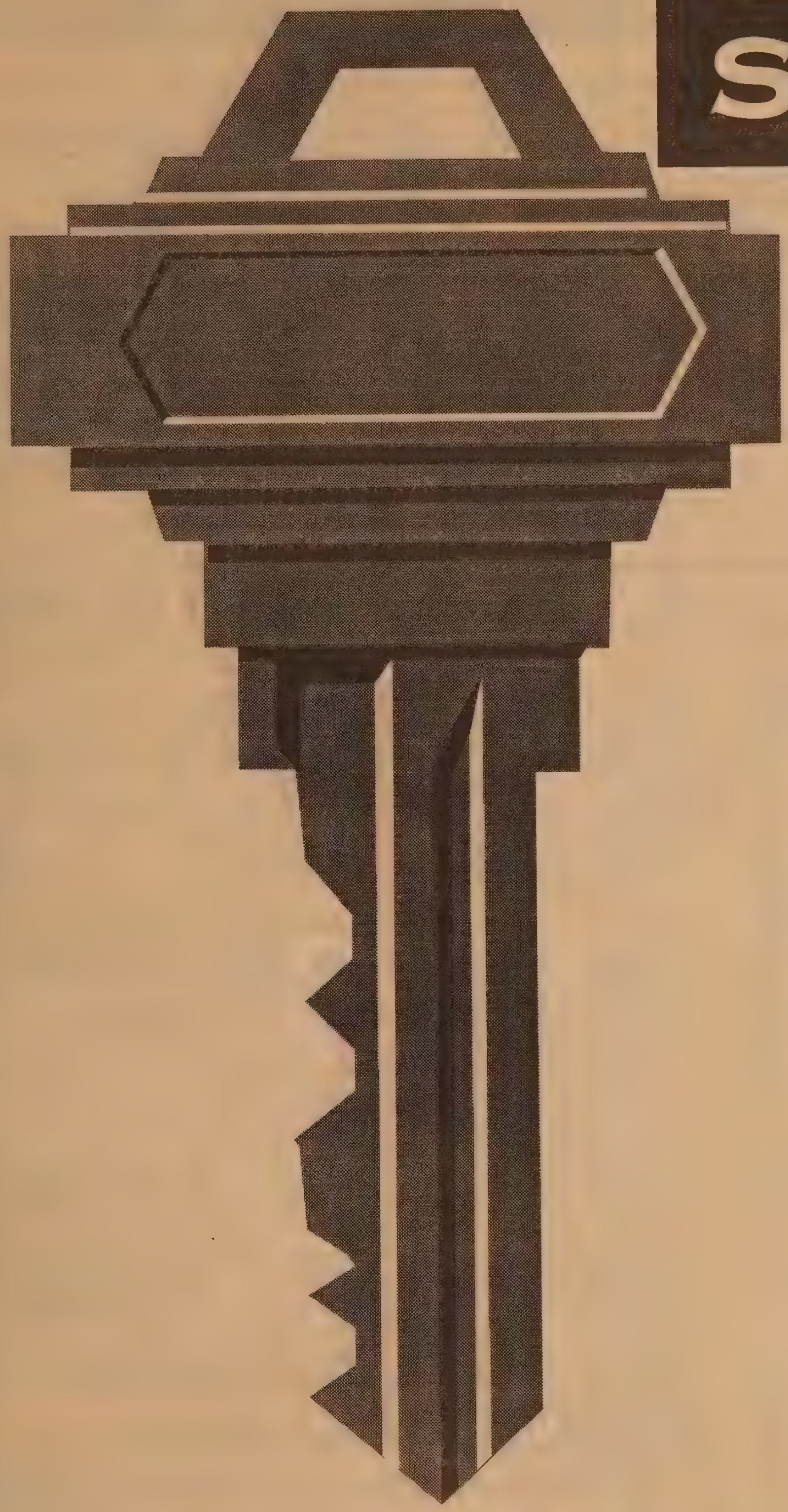

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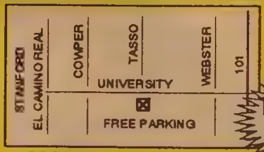

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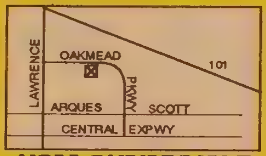

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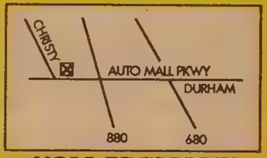

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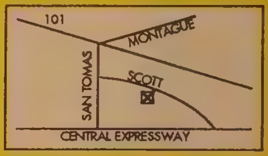

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  - Pentium P24T Support-ZIF socket
  - Built in IDE I/O 2S/1P
  - 256K Static RAM cache
- 4MB RAM exp. to 64MB
- TEAC 1.2MB & 1.44MB FD
- Key Tronic 101 keyboard
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SuperVoyager II - 33

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  - Built in IDE I/O 2S/1P
  - 256K Static RAM cache
- 4MB RAM exp. to 256MB
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Motherboard Benchmark Summary

Product	MHz	Cache	Landmark CPU V. 2.0	Pwr Mtr MIPS V. 1.7	Norton SI Computer Index V.6.0	InfoWorld CPU V. 1.0
Excalibur VLB	66	512KB	385.00	47	211.3	80.5
Enterprise IV	33/66	256KB	223.55	29.5	144.5	48.7
Enterprise IV	50	256KB	167.64	22.3	108.4	37.0
Enterprise IV	40	256KB	134.13	17.3	86.6	22.4
Enterprise IV	33	256KB	111.75	14.9	72.2	24.3
SprVoy VLB II	33/66	256KB	223.53	29.1	144.5	48.4
SprVoy VLB II	50	256KB	167.64	22.1	108.4	36.8
SprVoy VLB II	40	256KB	134.2	17.8	86.6	25.9
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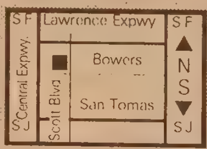

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Unix *continued from page 86*

grep does. On the other hand, having a tool between you and htgrep does mask some of htgrep's complications.

Like grep, htgrep works with files, but it expects the files to be identified by Uniform Resource Locators (URLs) rather than by name. Instead of returning lines of text, htgrep returns paragraphs, suitably encoded with HTML tokens so the paragraphs can be displayed as hypertext.

URLs are the basic unit of currency for the World Wide Web, and they provide a scheme for classifying files by name, contents, and location on a network. A URL looks like this:

http://cui_www.unige.ch/ftp/PUBLIC/oscar/scripts/README.html

"http:" is a token describing the services appropriate to this URL, in this case, the hypertext transmission protocol (http). Following the "//" separator is the name of a network host (cui_www.unige.ch, a World Wide Web server at the Information Science Center of the University of Geneva). Finally there's a full pathname for a file at that site.

The interesting thing about URLs is that they are more than pointers to files. Indeed, htgrep can be invoked with a URL. For example, this URL (taken from the htgrep manual) tells htgrep to search the file name "cat.html" in a directory named W3catalog:

http://cui_www.unige.ch/cgi-bin/htgrep/file=W3catalog/cat.html

URLs are not the friendliest of identifiers, nor are the hypertext encoded paragraphs it returns easy to read.

Using a hypertext browser (like Mosaic), however, the URLs and HTML tokens that htgrep works with are safely out of sight. The W3 Catalog is a search tool that uses htgrep, and Figure 1 shows the interface it gives the user for starting queries and displaying results. (The query shown searched the W3 Catalog for references to ABAG, the Association of Bay Area Governments.)

Hidden as it is and working with URLs and the like, htgrep is unlikely to become a household word. It does, however, serve a valuable function: by adapting an interesting idea, it ensures the idea's survival. After all, it would be a shame to discover that the Productivity Paradox had something to do with "grep" only after people had long forgotten what grep was. ■

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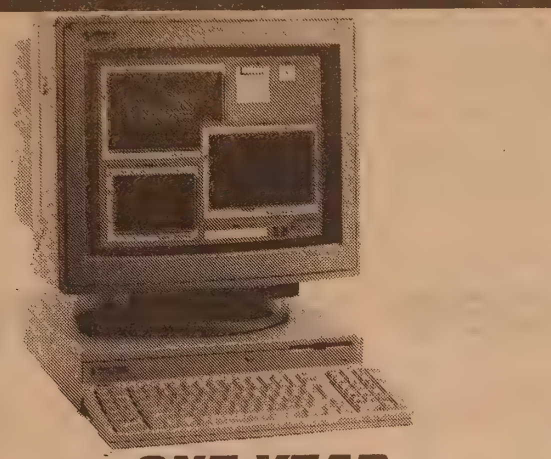

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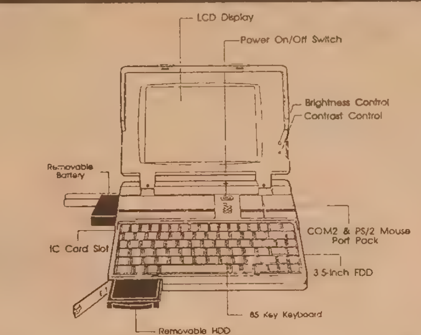

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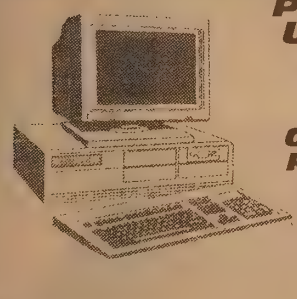

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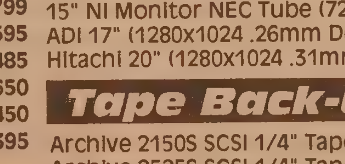

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Laptops *continued from 54*

Computer Of The Month

Altima's New Virage Line

From its first computer in the late 1980s, I have consistently loved the products offered by Altima. Despite the size of the company, the people at Altima are so tuned in to the needs of the marketplace that I have no trouble recommending their products. They have focused on portables and consistently strive to stay ahead of the pack.

Altima's newest entry is, as usual, a step ahead of the competition. It is difficult to describe this portable as a single computer because in reality it is a product line. The Virage series is designed as a line of modular components that can be assembled any way the customer wants. At the low end is a monochrome unit powered by a 486SX-33 processor with a 120MB hard disk and a $1632 price tag. The top of the line configuration boasts an active matrix color display powered by a 486DX2-66 processor with a 524MB hard drive and a price of $5119. When you take into account all the hard drive sizes, choice of four different processors, and three display options, you have something like 120 different models. Memory comes standard as either 4MB or 16MB, but you can get any amount up to 32MB.

Virtually every component of the system, from the hard drive to the display, can be upgraded by the user. The design of the Virage line is based on the notion that the customer can get any configuration and that the machine can be constantly upgraded as the technology and prices change. Everything from the central processor to the display and hard drives is removable by the user.

> The Virage series is designed as a line of modular components that can be assembled any way the customer wants.

The basic design features are excellent. It weighs between 6/7lbs., depending upon the configuration. The dimensions are 11.3" x 8.7" x 1.6". All models come with a high-density removable floppy drive. You can replace the floppy drive with a second Nickel Metal Hydride battery pack ($139), which can boost your uninterrupted battery usage up to ten hours. Recharge time is about an hour and a half.

The keyboard design is excellent and the feel is good. Of course, you can use any PS/2 keyboard you like and Altima sells an, attractive one ($99). That includes a very nice built-in trackball. While I like it better than most of the built-in models that come on portables, I still enjoy having the option of using a standard mouse connected to the serial port.

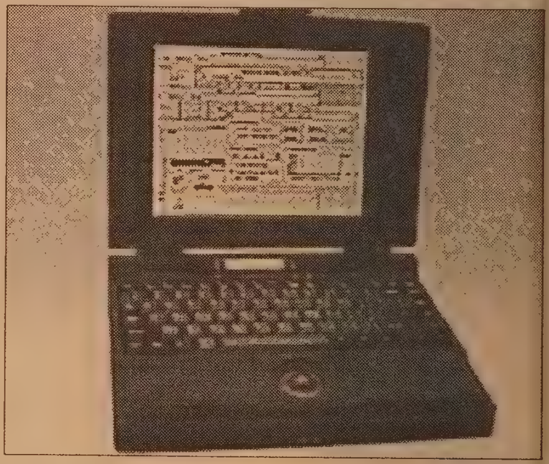
The 9.5" display is also good, but you have the option of using any color monitor you like. Altima can also sell you a 17" monitor ($799), but I used the Nanao FlexScan F340i-W that I have been raving about for the last few months. Altima's video is a high-performance 32-bit VESA local bus system, so it is perfectly suited to video-intense applications.

Altima leads the pack in its design. This time they have included an audio system. On the front of the computer are ports for plugging in speakers and a built-in microphone. In addition, they have a microphone. The sound system is compatible with Sound Blaster in case you need to play video games on the road. The sound capabilities of the Virage are quite sophisticated and I urge you to check out this computer if you need sound as a standard part of your computer use.

Standard interfaces include a serial and parallel port. There are also either two PCMCIA Type II slots or one Type III slot. The only difference between the two cards is their height. Altima has a variety of accessories to fit these slots, but you can also use any PCMCIA product. That is the beauty of this standard. It really means that parts become interchangeable and you are not limited in your selection of PCMCIA accessories.

Whichever configuration you select, all Virage models come with MS-DOS 6.2 and Windows 3.1 preloaded. A number of utilities are included on disk. And finally, a small carrying case comes with the unit.

A wide selection of accessories ranging from PCMCIA cards to a docking station ($499) are available from Altima. A one-year parts and labor warranty protects you from failure, and five-days-a-week toll-free technical support comes with the unit. Once again, I highly recommend the new Altima Virage portable computers. ■



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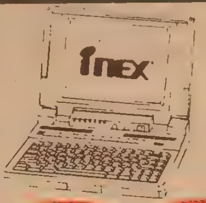

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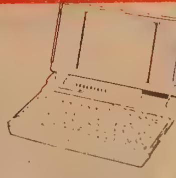

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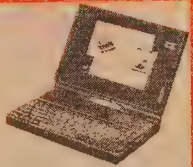

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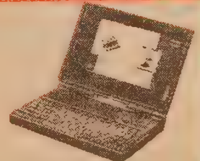

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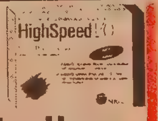

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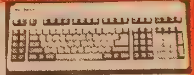

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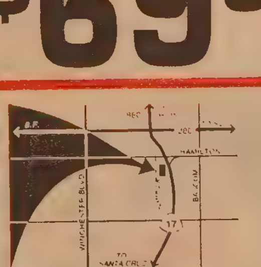

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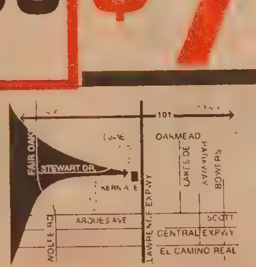

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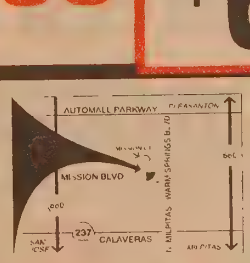

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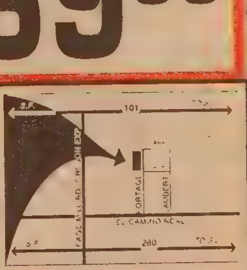

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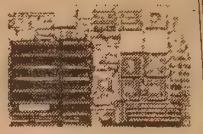

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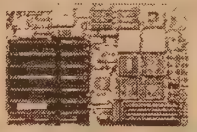

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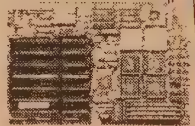

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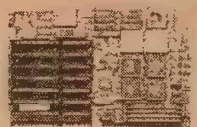

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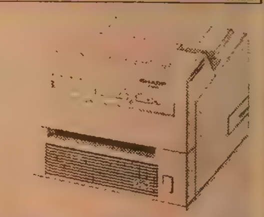

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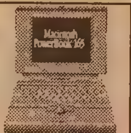

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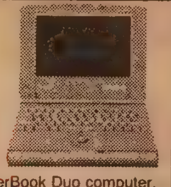

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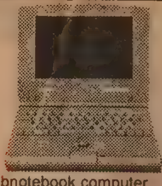

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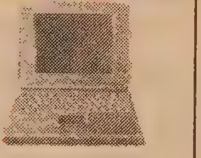

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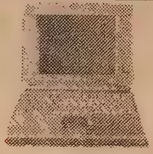

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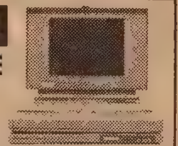

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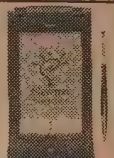

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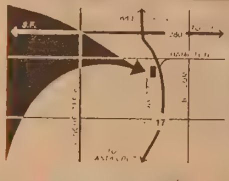

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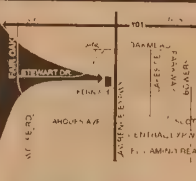

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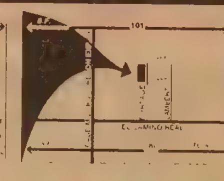

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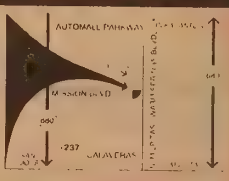

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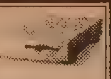
Apple® Macintosh® Quadra® 605 8/250



Quadra® 605 68LCO40 25MHz CPU • 8MB RAM Expandable to 36MB • 1.44MB Floppy Drive • 250MB Hard Drive • 2 Serial Ports • ADB Port • Video Output for all Apple Displays

Productivity Software Suite: Clarisworks, Quicken 4.0, Astound 1.0, Full Contact 2.0, File Duo 1.02, Common Ground 1.1, Working Watermarker 1.04, American Heritage Dictionary 2.0

Monitor And Keyboard Sold Separately

$1299

#1916883

Apple® Macintosh® Quadra® 610 DOS Compatible

Offering a breakthrough in affordable power and compatability, the Macintosh Quadra 610 DOS Compatible features dual microprocessors. Its fast Motorola 68040 processor provides high performance for Macintosh applications. And its Intel486 sx processor delivers strong performance for DOS and Windows applications. Features include: 25MHz Motorola 68040 processor • 25MHz Intel486 sx processor • 8MB of Ram, expandable to 100MB • 512K of VRAM, expandable to 1MB (Macintosh environment) 512K of RAM for videos (DOS environment)

$1499

#1896794

PowerPC Apple® Power Macintosh 6100/60

PowerPC 601 RISC processor; integrated math coprocessor • 60 megahertz speed • 8MB RAM expandable to 72MB Apple SuperDrive floppy drive •160MB Hard Drive • Internal expansion slots for one NuBus expansion card; dual-channel high performance SCSI that supports up to seven SCSI devices Two serial ports SCSI port • Apple Desktop Bus Port • Video input/output port • Standard monitor port • Built-in support for all Apple displays and supports several third party VGA and SVGA displays • Built-in LocalTalk and high-speed Ethernet connections; AppleTalk networking software • Power Macintosh will run DOS and Windows applications with SoftWindows by insignia Solutions **Monitor & Keyboard Sold Separately**

$1699

#1896990

PowerPC Apple® Power Macintosh 7100/66

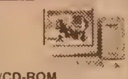
8MB RAM/250MB HARD DRIVE

PowerPC 601 RISC processor; integrated math coprocessor • 66 megahertz speed • 8MB RAM expandable to 136MB • Apple SuperDrive floppy drive • 250MB Hard Drive • Internal expansion slots for three NuBus expansion cards. • dual-channel high performance SCSI that supports up to seven SCSI devices Two serial ports • SCSI port • Apple Desktop Bus Port • Video input/output port Standard monitor port • Built-in support for all Apple displays and supports several third party VGA and SVGA displays • Built-in LocalTalk and high-speed Ethernet connections. AppleTalk networking software Power Macintosh will run DOS and Windows applications with SoftWindows by insignia Solutions. **Monitor & Keyboard Sold Separately**

$2799

#1897016

PowerPC Apple® Power Macintosh 8100/80



8MB RAM/250MB Hard Drive/CD-ROM

PowerPC 601 RISC processor; integrated math coprocessor and 256K memory cache • 80 MHz speed • 8MB RAM expandable to 264MB • Apple SuperDrive floppy drive • 250MB Hard Drive CD-ROM • Internal expansion slots for three NuBus expansion cards; dual channel high performance SCSI that supports up to seven SCSI devices • Two serial ports • SCSI port • Apple Desktop Bus Port Video input/output port • Standard monitor port • Built-in support for all Apple • displays and supports several third party VGA and SVGA displays • Built in LocalTalk and high-speed Ethernet connections; AppleTalk networking software. Power Macintosh will run DOS and Windows applications with SoftWindows by insignia Solutions **Monitor and Keyboard Sold Seperately.**

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#1897094

Apple® 14″ Color Display

The Macintosh Color Display offers all of these benefits—and sets new standards for performance. With this display you'll see right away that lines are perfectly straight. Edges are sharp. Colors are pure and uniform. And image definition is crystal clear over the entire area of the screen, even in your finely detailed drawings.

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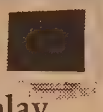
Apple® 14″ Color Trinitron Display



The new Apple® Macintosh® Color Display provides the high quality and practical ergonomic design you expect from Apple. Its color and gray-scale capabilities give you versatility for a variety of projects. And its enhanced electronics allow this 14" monitor to display full-color images with photographic quality. The display's low, stable center of gravity keeps it from being easily tipped over, and its built-in tilt-and-swivel base make adjustment easy.

$399

#1738513

Apple® 20″ Color Multiple Display

- Provides excellent brightness, contrast, coverage, focus, and white uniformity that give you clear, sharp pictures with the colors through the Sony Trinitron screen
- Comes with a tilt-and-swivel base that allows you to position the monitor for optimal viewing comfort
- Complies with the EPA's EnergyStar conservation guidelines
- Capable of displaying resolutions from 640 by 480 to 11,280 by 1,024.

$1999

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Apple® Macintosh 14″ AV Monitor

The first in an entirely new class of displays, the AudioVision 14 Display integrates high-quality stereo speakers, microphone, and high-contrast display into a single, sleek package. Speakers deliver CD-Quality sound because they're specially engineered for near-field listening, sound clarity, and full-frequency response. Display Quality:

- 14-inch screen, 640 horizontal pixels by 480 vertical lines (at 70 dots per inch)
- Trinitron color picture tube with improved electronics for higher brightness, high contrast and uniform contrast

$649

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TOSHIBA MULTIPLE FREQUENCY FLAT SCREEN 17" COLOR MONITOR

Resolution selectable from VGA to 1024 x 768, with high resolution graphics. DAC (Dynamic Astigmatism Control) focus system with .31mm dot pitch and Invar Mask.

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Microsoft CINEMANIA'94 INTERACTIVE MOVIE GUIDE FOR MAC

CINEMANIA'94

From contemporary to classic films, the Microsoft Cinemania interactive movie guide is the fast, fun way to see and hear it all–the reviews and biographies, the faces and voices, even movie scenes and music. Cinemania is a must for every movie lover!

$59.95

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BERKELEY SYSTEMS STAR TREK SCREEN POSTERS

STAR TREK
SCREEN POSTERS

Desktop Art and Slide Show Screen Saver

Over 35 of the greatest images from the Star Trek motion pictures.

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MAC
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FREE
Macintosh
System 7

is one of the most significant advances in personal computing since the introduction of MAC*. It gives your MAC powerful, new capabilities and makes it even easier to use. It also paves the way for a new generation of advanced MAC applications.

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The easiest way to organize your contacts and your time. Organize your contact and to-do list, phone numbers, notes, reminders, and calendar all in one incredibly powerful, yet easy-to-use desk accessory.

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BERKELEY SYSTEMS THE DISNEY COLLECTION SCREEN SAVER

The Disney Collection Screen Saver will take you to the magical world of Disney with your favorite characters. Includes five classic Disney songs and over 15 colorful animated Disney displays.

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MAC
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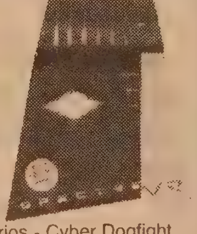
VELOCITY SPECTRE VR MAC



Spectre VR is not just another game, it's another reality. Features:

- Build your own virtual world with VRchitect™ cyberspace editor.
- You can play with eight participants in over a dozen enhanced network scenarios - Cyber Dogfight and more.
- All new graphics and texture-mapped VR realism and a lot more!

$39.95

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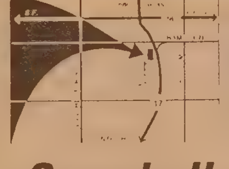

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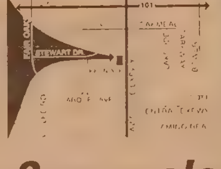

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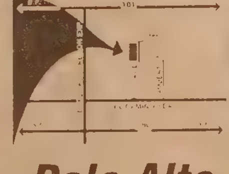

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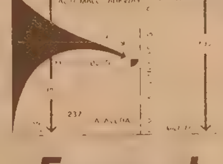

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High image resolution - 640 by 480 Standard image resolution - 320 by 240 pixels • 24-bit color resolution • 1MB of Flash EPROM stores up to 32 images for over one year • 1/30 to 1/75 seconds shutter speed, self-timer - 10 seconds automatic • ƒ2.8 to ƒ16 automatic aperture range • Focus range of four feet to infinity Built-in automatic or manual flash - range from 4 feet to 9 feet

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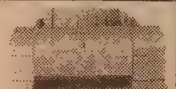


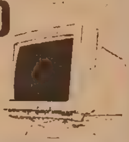
Apple Color StyleWriter Pro

Ink-jet printer that provides high-quality color printing in a compact design. It is a versatile printer that's perfect for home or office use, since it lets you print your color files at your desk at about half the cost per page of other desktop color printers.The Color StyleWriter Pro includes 64 scalable TrueType fonts and yields a resolution of 360 dots per inch; ColorShare and ColorSync.

$599

#1897175

MAGNAVOX 640 x 480 14" MAC COLOR MONITOR



.28 Dot Pitch • 640 x 480 • Includes Cable

$299

CM2080
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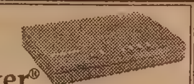
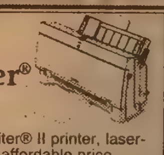


Apple® Portable StyleWriter® Printer

The Apple® Portable StyleWriter® printer goes anywhere and everywhere with Apple Macintosh® and PowerBook™ computers. It delivers high-resolution output, and versatile paper handling, all with smooth, quiet performance. And it even fits inside a briefcase. The Portable StyleWriter weighs only 4.5 pounds, and works with any PowerBook, Apple PowerBook Duo™, or Macintosh® computer, using a rechargeable battery or a standard power source. It can print in a horizontal or vertical position, so you can use it in even the most confined spaces, whether you need to print on letterhead, envelopes, labels, or transparencies.

$399

A#1820443



Apple® StyleWriter® II Printer

The Apple® StyleWriter® II printer, laser-quality printing at an affordable price.

- 360 dots per inch quality
- Multipurpose tray holds up to 100 sheets of paper and 15 envelopes
- Comes with 39 scalable TrueType™ fonts
- GreyShare™ driver software for gray-scale printing
- All Macintosh products are designed to work together

$259

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CITIZEN

Notebook Printer II For Mac

The new Citizen Notebook Printer II, offers ultra-convenient laser quality printing, a built-in five page sheet feeder (30 page optional sold separately), special image 360 dpi high definition output at two pages per minute

$299.99

#1871298

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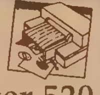

DeskWriter 520

Inkjet Printer for Mac

Clear, sharp, professional-quality black output with 600 x 300 dpi black printing, HP's Resolution Enhancement technology for smooth, crisp characters, fast text printing at up to 3 ppm, 256 levels of grayscale, energy efficient, and has a three year limited warranty.

$276.89

#1892457

Apple® LaserWriter® Select 310

The Apple® LaserWriter® Select 310 is the most affordable PostScript laser printer ever to come from Apple, and is designed for personal use by both Macintosh and Windows computer users. You'll appreciate the printer's speed. And with PostScript printing, you'll also get high-quality results and compatibility with all the major application programs. **Toner Not Included.**

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LaserJet 4M Plus

The BEST print quality in the industry

- 12 pages per minute printing for Macintosh ans mixed Mac/Pc environments
- True 600 dpi output
- Adobe™ PostScript™ Level 2 and enhanced HP PCL 5 printer languages.
- 80 scalable typefaces - 35 Adobe Type1, 35 Intellifont, 10 TrueType™
- 6MB standard, expandable up to 38MB
- 250 sheet paper tray and 10-envelope multipurpose tray.

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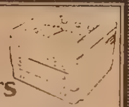

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Laser Printer For Mac

Windows and Macintosh Compatible • Built-in Emulation Switching (AES) • Expandable Memory • 250-Sheet Papert Tray • True Adobe • PostScript • 5 Pages Per minute• Optional 2nd Paper source • HP LaserJet Compatible Outilne Fonts

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Sonic MAC Networking AAUI TWP Transceiver

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ASTRO CHASE 3D

You are the Confederation's Last Hope...

- Spectacular, photo-realistic 3D graphics.
- Incredibly fast action and combat response.
- All digitized speech and sounds.
- Non-stop action against relentless enemy craft.
- Five practice simulator levels of tense action with everything on the line.

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Gryphon Colorforms

Colorforms® Computer Fun Set was designed with every child's interest in mind! While some children enjoy a farm setting others may prefer basic shapes. There are 27 different stick-ons™ included in each of the themed modules!

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VideoDirector is an easy to use video editing system that allows you to edit your video footage with little effort. You can select your favorite moments, arrange them in any order and VideoDirector automatically and accurately records them onto a new tape. It includes a video database and Smart Cables.

$135.95

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Microsoft CINEMANIA'94 INTERACTIVE MOVIE GUIDE FOR MAC

From contemporary to classic films,the Microsoft Cinemania interactive movie guide is the fast, fun way to see and hear it all–the reviews and biographies, the faces and voices, even movie scenes and music. Cinemania is a must for every movie lover!

$59.95

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With MacWrite Pro you can:

- Create dazzling documents that get you noticed
- Get professional results with precission control
- Tap desktop publishing power.

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- Extensive Reporting
- Performance Analysis

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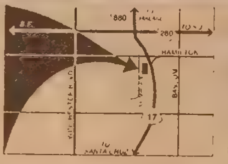

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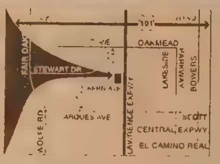

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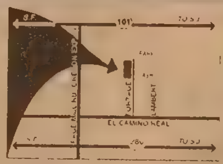

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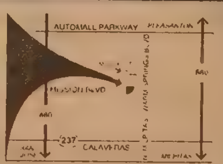

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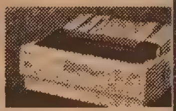
YOU'VE GOT A LOT OF COMPANY

EPSON® LQ-570 PLUS 24 PIN PRINTER WITH SCALABLE FONTS



- 80 Column • 269 CPS Draft Mode
- 112 CPS Letter Quality
- Four Scalable Fonts
- 360 dpi with Optional Film Ribbon

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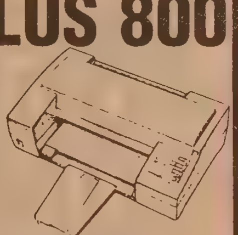
EPSON® STYLUS 800 INK JET PRINTER



360 X 360 dpi "Laser-Sharp" printing
ESC/P2 with 4 Scalable Fonts
Whisper Quiet and Fast
7 built-in typefaces
Windows Compatible
2 Year Warranty

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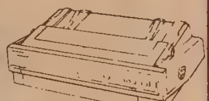
EPSON® LQ-1070 PLUS 24-PIN PRINTER



136 Column • 11 Fonts
2 Scalable Fonts • 252 CPS Draft Mode 84 CPS NLQ Mode

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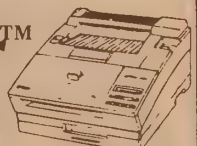
EPSON® *Action Laser*™ 1500



- Fast six pages per minute print speed.
- HP LaserJet III and Epson dot matrix compatible
- 27 resident fonts, 13 scalable
- 1MB memory expandable to 5MB
- 300 dpi resolution w/RIT
- Built-in parallel & serial interface
- 2-year limited warranty

$688

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Canon BUBBLE JET 200e PERSONAL DESKTOP PRINTER

Canon
BJ 200e

- 360 dpi for Laser-Quality Graphics and Text
- Printing Speed Rivals 4 ppm Lasers
- 100 Sheets or 15 Envelopes
- EPA Energy Star Compliant
- 2 Year Limited Warranty

$268*

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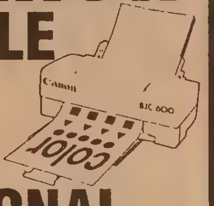
Canon BUBBLE JET 600 PERSONAL COLOR PRINTER


Canon
BJC 600
color

- Prints 360 DPI on plain paper for brilliant color quality.
- 100 Sheet automatic feeder for easy paper handling
- Easily handles letter and legal size paper, also envelopes and back print film.
- Comes with a 2-year limited warranty.

$558*

*After $30 Mail-In Rebate. In-Store Price... $588

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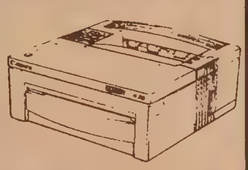
Canon LBP 430 LASER PRINTER



- 300 dpi and Super Fine Toner for Superior Print Quality
- 4 ppm Print Speed • PCL5 Compatible
- 100 Sheet Universal Paper Tray Handles Several Paper Sizes
- 1MB Memory, Upgradeable to 5MB
- Two Year Limited Warranty

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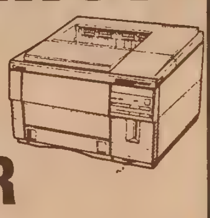
Canon LBP 860 LASER BEAM PRINTER



- 600 dpi
- 8 ppm and RISC Processing
- Prints Most PCL5e and PostScript files with Standard 2MB of Memory
- Comes Standard With 100 Sheet Multi-Purpose Tray and 250 Letter-Size Tray

$1299*

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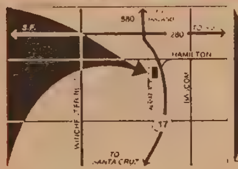
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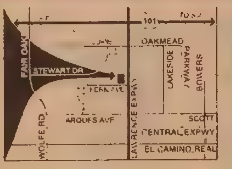
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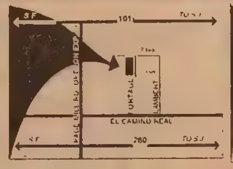
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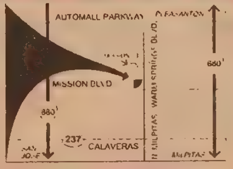
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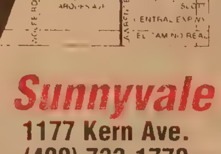

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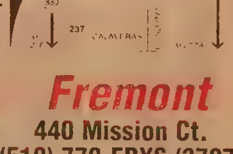

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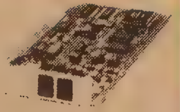

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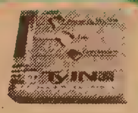

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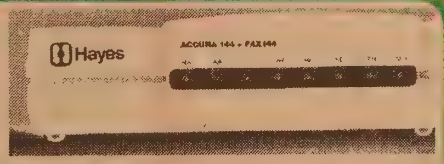

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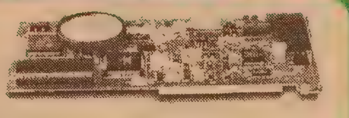

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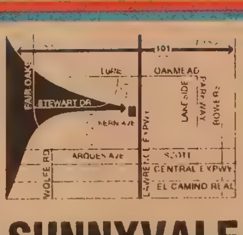

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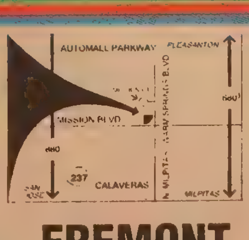

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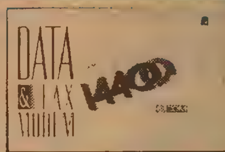

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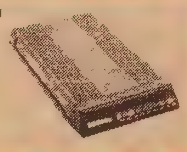

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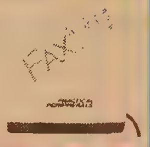

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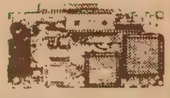

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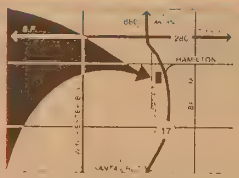

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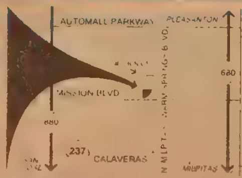

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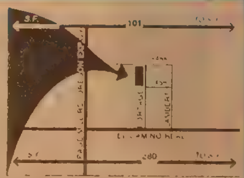

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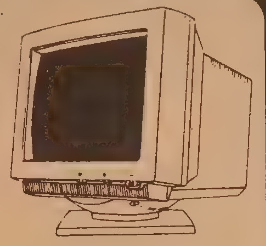

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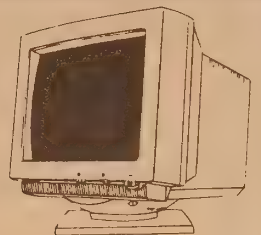

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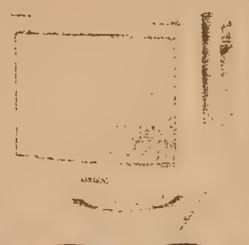

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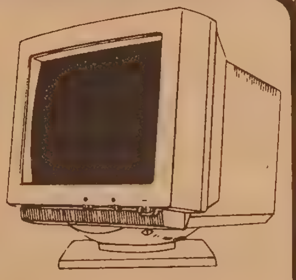

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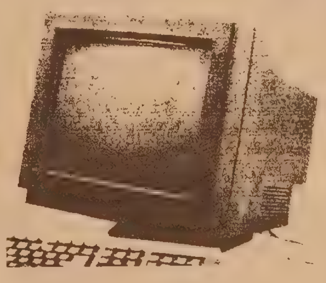

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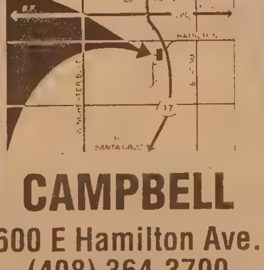
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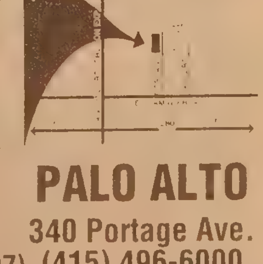

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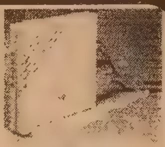

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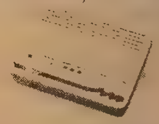

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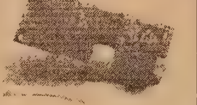

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If you primarily need to send and receive faxes, and you occasionally need to communicate on-line, PowerPort/Bronze is the product for you. PowerPort/Bronze lets you send faxes at 9600 bps and receive faxes at 4800 bps. As an internal modem, PowerPort/Bronze can awaken your PowerBook to receive a fax and then return it to sleep.

- Data Link Rates 2400,1200,300 bps
- Communications Channel Full/half duplex on two-wire, dial-up phine line
- GlobalFax fax software.

#1735635

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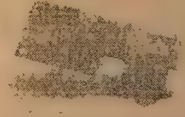
POWERBOOK
14.4 FAX/14.4 MODEM



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It's the perfect choice for transfering large files from your powerbook.
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Full duplex at 19,200; 16,800; 14400; 12,200, 9600; 7200; 4800; 2400; 1200; and 300bps V,32 terbo, v 32bis, V.32, V23, v.22bis, V.22, V.21; Bell 212A and 103 Asynchronous, Synchronous (autosync) V.42bis, MNP Class 5
Full/half duples on two-wire phone line; originate answer; rotary and touch-tone dialling; auto answer/auto-dial; AT Command Set
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The SupraFAXModem 288 offers hassle-free data transmissions from your Mac at the highest speeds possible! With 28,800 bps and state-of-the-art data compression, it's the perfect choice for transferring large files and for high-speed performance.
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The Zoom/FaxModem VFX V.32bis is a fully integrated Group 3, Class 1 and 2, 14,400 bps send/receive fax and full-featured Hayes compatible 14,400 bps modem. Six times faster than a 2400 bps modem. All error-correction and compression are hardware-based.

- 7 year warranty.
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VFXMAC
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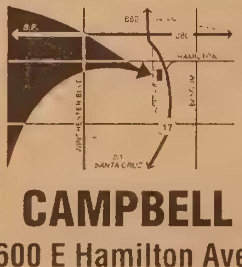

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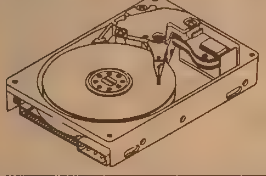
3.5" x 1" HT • 16MS Average Access
ST3145A #1660878



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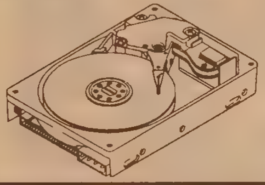
17ms Average Access • 32K Buffer • 1" HT. • Low Power Consumption
#1656815



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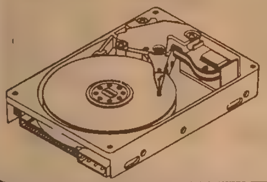
131MB 3.5" IDE HARD DRIVE

3.5" X 1" HT • 15MS Access Time
7131A #1803646



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Electronics American, Inc

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3.5" Form Factor 1" Ht.
SHD3122A #1786011

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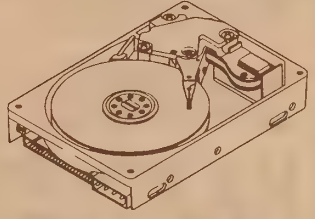

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14ms Access • IDE Interface • 1" Ht.
32K Buffer • Two Year Warranty
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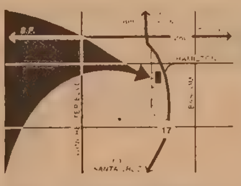
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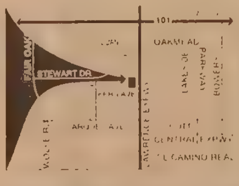
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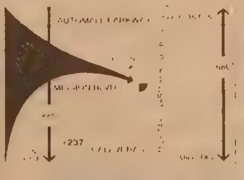
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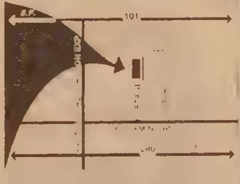

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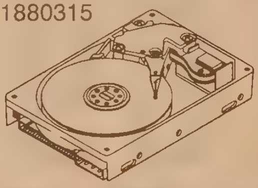
355MB IDE HARD DRIVE

355MB IDE HARD DRIVE • 3.5" X 1" HT. 13 MSEC;
SHD-3172A
#1880315



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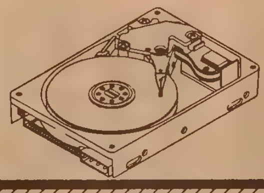

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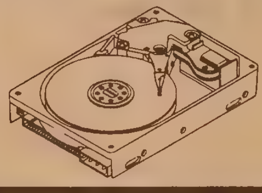

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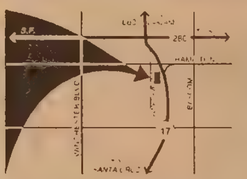
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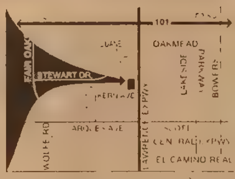
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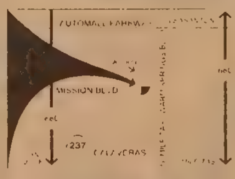
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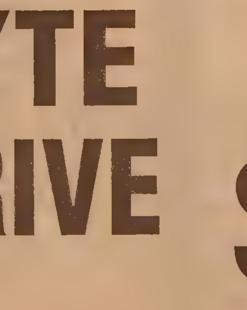

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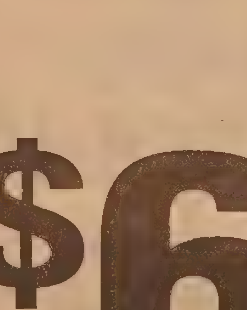

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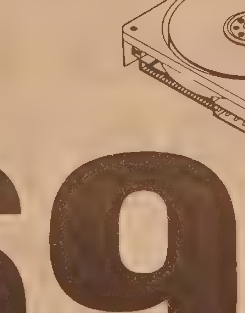

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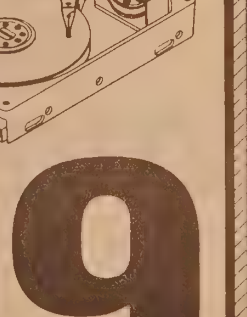

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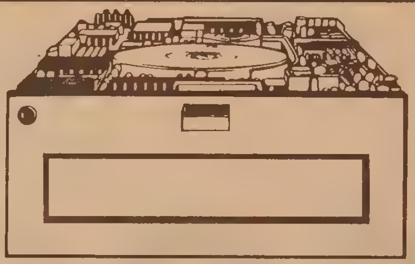

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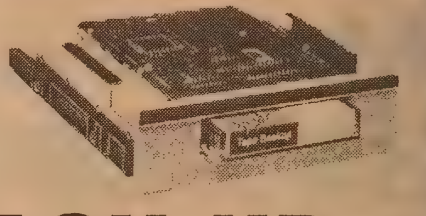

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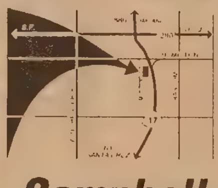
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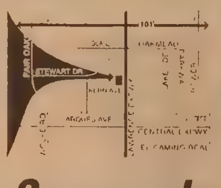
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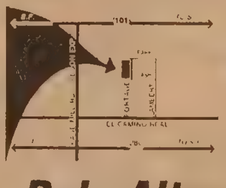
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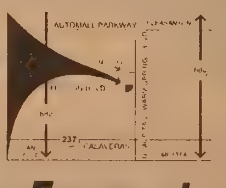
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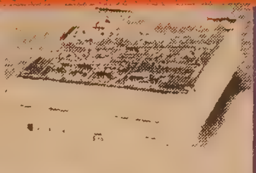

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- 300 KB/S Transfer Rate
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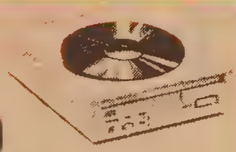

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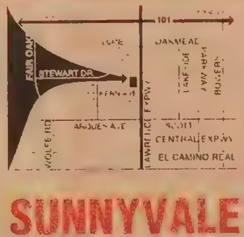
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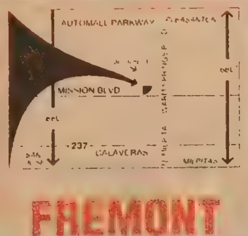
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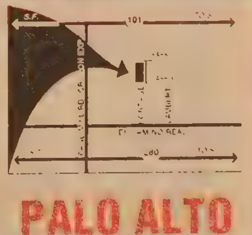
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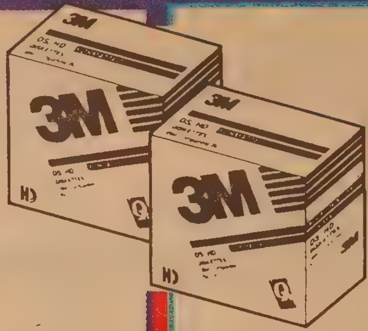

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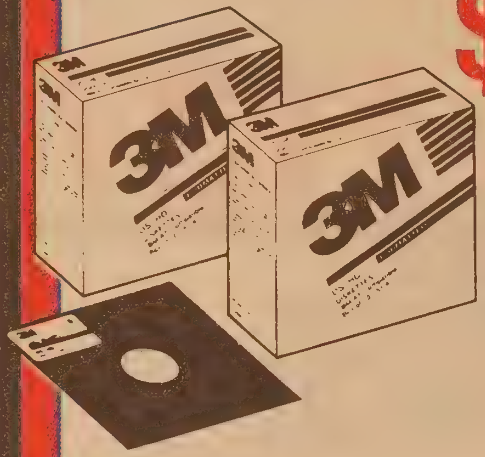

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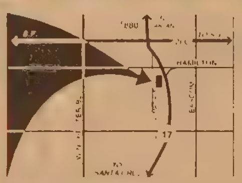

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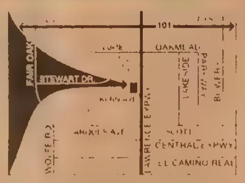

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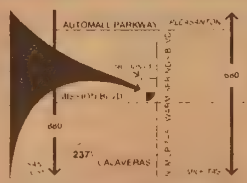

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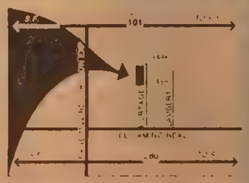

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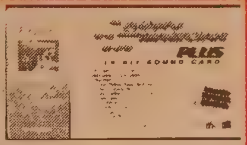

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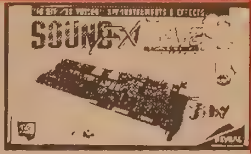

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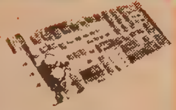

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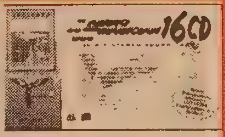

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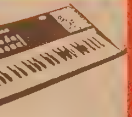

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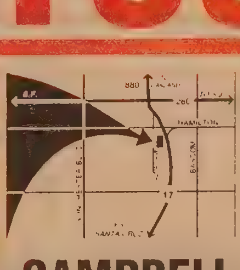

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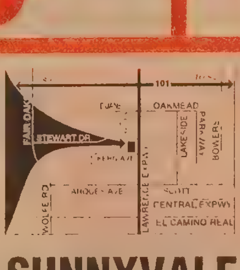

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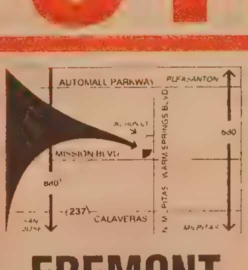

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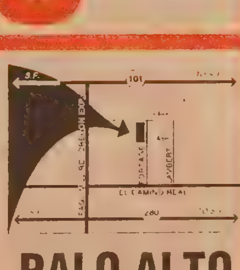

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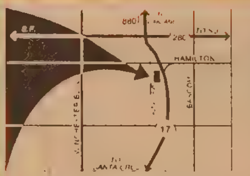
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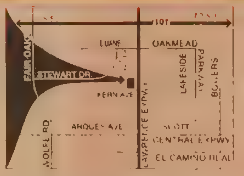
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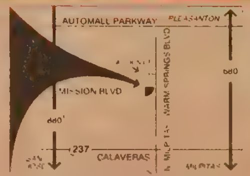
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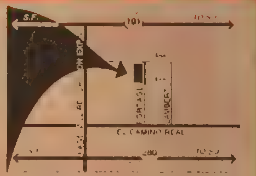
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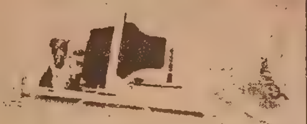

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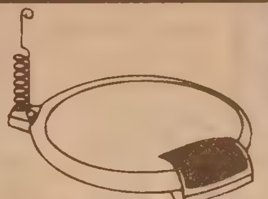

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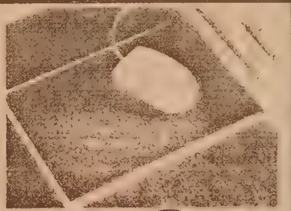

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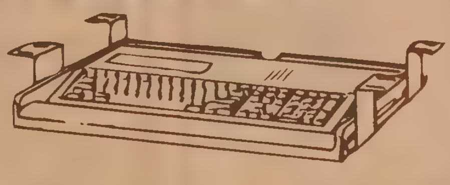

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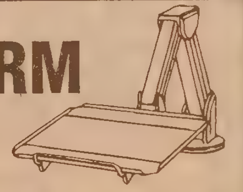

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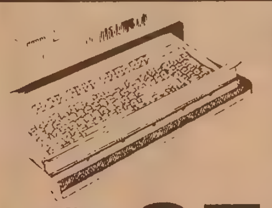

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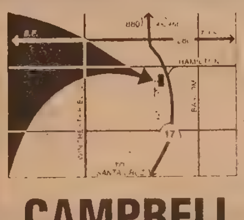

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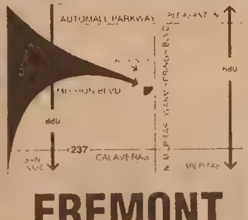

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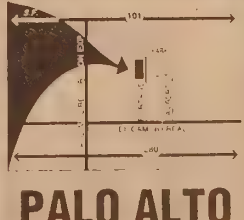

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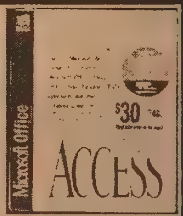

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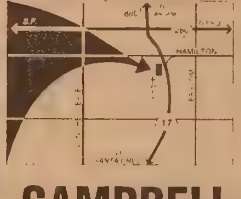

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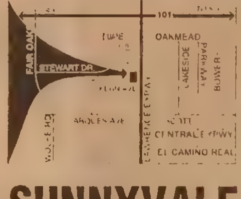

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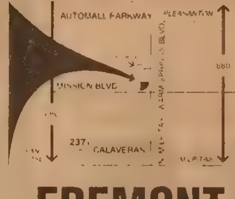

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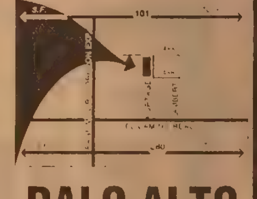

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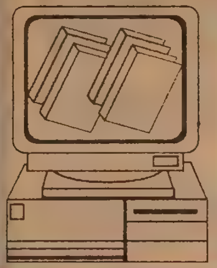

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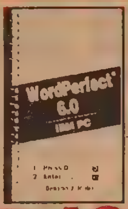
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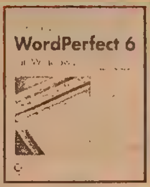
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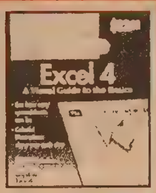
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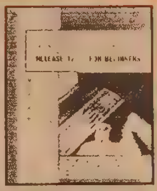
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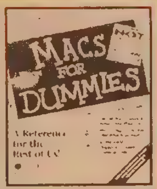
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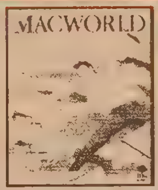

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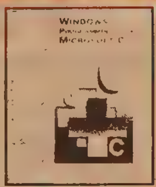

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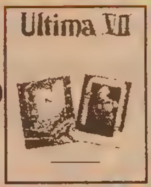

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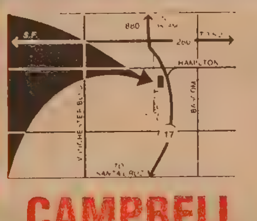
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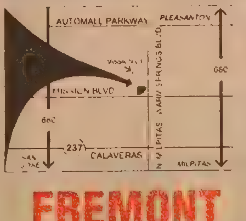
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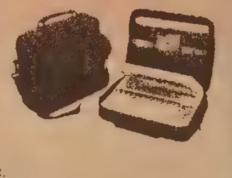

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External flap pockets hold printer and other accessories.
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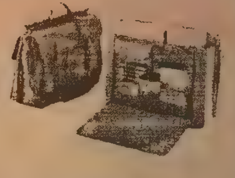

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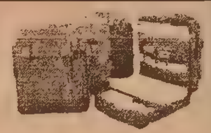

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Main compartment: 14 1/2" x 10 1/2" x 2"
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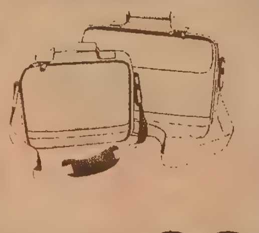

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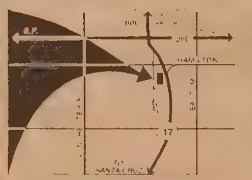

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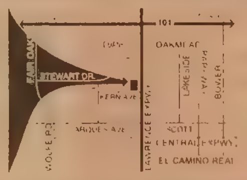

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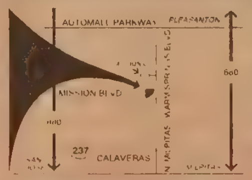

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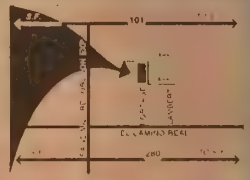

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- Safety Lights turn red indicating power problems: Low Voltage light indicates power has fallen below 100 volts Outlet, Ground Lights indicate faulty wiring in the wall outlet Protection light indicates surge suppression is not working
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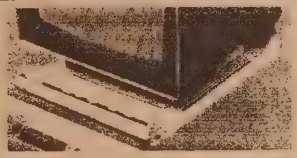

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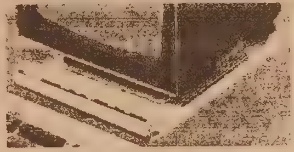

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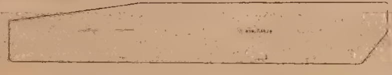

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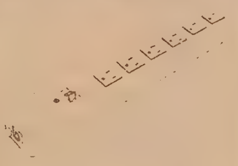

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Six outlets

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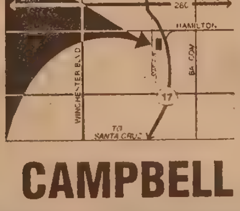
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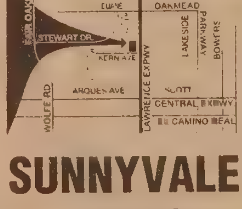
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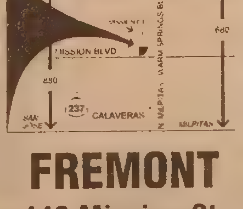
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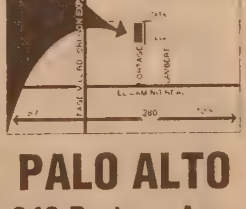
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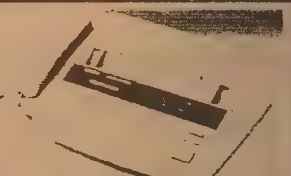

ACS ANTI-CURL SYSTEM

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From Brother the high tech home office leader come this feature laden fax machine with 32 level grayscale for enhanced contrast reproduction, 60 station memory, 10 page auto document feeder, anti-curl mechanism, smoothing, multiple resolution transmission, 16 digit LCD display, activity report, Polling, next fax reservation, and much more. Now just....

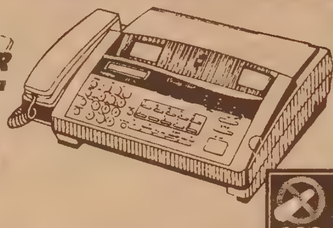
$329

Model FAX-640
#1917437

brother

THERMA PLUS PAPER

FACSIMILE MESSAGE CENTER
WITH AUTO PAPER CUTTER



ACS ANTI-CURL SYSTEM

The Facsmile Message Center was designed so that the internal memory can be used for out of paper reception (up to 50 pages), as an all digital answering machine (up to 12 minutes), or you can share the memory on a first come first serve basis! Other features include 15 page auto document feeder, 32 level grayscale, 16 digit LCD display, sequential broadcasting, multi-copying with sorting, 60 station memory, Fax/Tel switch, Multiple resolution transmission, and much more for only...

$479

Model FAX-780
#1796944

We're at your side.

brother

PLAIN PAPER FAX
WITH 256K MEMORY

Brother's done it again! Last year Brother broke the $400 price barrier in paper cutter Fax, and for an encore, Brother has destroyed the $799 stand alone plain paper Fax barrier with this unbelieveable value. Its 200 sheet paper cassette, 30 page auto document feeder, on-screen programming, "smoothing" enhanced image resolution, 48 digit LCD display, multiple resolution transmission, 32 level grayscale, 160 station memory, and Fax/Tel Switch makes this the best value you will find at only....

$599

Model FAX-980
#1801828

brother

ELECTRONIC LABELING SYSTEM

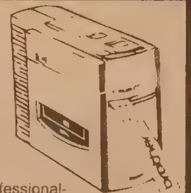
This electronic marvel creates quality headlines and captions in 5 sizes, 4 styles, 2 different directions and in various colors and finishes, plus the convenient 6 character LCD display and "Word Out" correction lets you proofread and edit to ensure you of a professional touch

$99⁹⁵

Model
PT-10 Buster
#1828946

brother

COMPUTER LABEL PRINTER

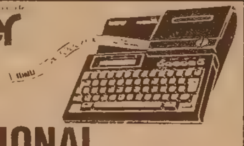


You can create customized professional-quality, adhesive-backed labels for virtually any industrial, business, home or commercial application directly from your PC with this versatile label maker from Brother! With label sizes ranging from 1/4" to 1" wide you will be able to create your own designs utilizing 8 different fonts, over 258 special scalable symbols, Database handling, Bitmap graphics, barcodes, etc. Includes Mac and PC software. Now just....

$249⁹⁵

Model
PT-PL
#1903670

brother



PROFESSIONAL LABELING SYSTEM

This "Professional Labeling System" features: 5-line printing, 5 sizes of tape to choose from (1/4 to 1"), 3 built-in fonts, 10 character styles, 7 point sizes for a total of over 540 settable character variations, as well as the ability to print 7 different types of bar codes It is perfectly suited for every office, large or small, retailers, factories, warehouses, and vertical markets such as supermarkets, hospitals, laboratories, schools, libraries, and many more.

$399

Model PT-8000
#1717309

brother

INK JET WORD PROCESSOR

This advanced Ink Jet Word Processor comes complete with everything you need to create may diverse laser-quality documents: business letters, reports, multi-column newsletters, pie charts, presentations, graphs, flyers, etc. An on-sreen "word spell" corrector/dictionary, thesaurus and pop up calculator make it easy to check your work before printing or transfering files to your PC. Now just...

$599

Model WP-7500J
#1872646

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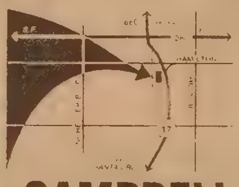

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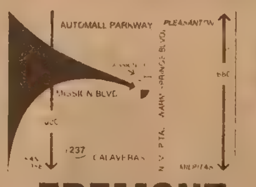

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GE. We bring good things to life

CELLULAR FLIP PHONE

WITH 100 NUMBER ALPHANUMERIC MEMORY

WHILE THEY LAST

Everyone has flipped for flip phones, and this GE Pocketfone is one of the reasons why! With its 100 Number Alphanumeric Memory (names and numbers can be stored together and scanned alphabetically), Menu Scroll, Dual NAM, 8 Level Call Restrictions, Last Number Redial, Lighted Keypad, Auto Scratchpad, Mute, Low Battery Warning, Speed Dialing, Call Mailbox, 90 Minute Talk Time Battery, Overnight Charger, and much more! Refurbished to work like new at only...

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Model CT-400R**
#1906411

*After $25 Instant Service Activation Rebate. Price w/o Activation $124.99

MOTOROLA

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ALPHA MICRO-TAC CELLULAR PHONE

If it's small and lightweight you're looking for, this is the cellular phone for you! With its 101 alphanumeric memory, a desktop charger, and standard battery, this technologicaly advanced cellular phone can be yours for only...

$319.95*

Model DPCAC**
#1635988

*After $25 Instant Service Activation Rebate. Price w/o Activation $344.95

MOTOROLA

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MICRO TAC LITE CELLULAR PHONE

This popular pocket sized cellular phone from Motorola combines the convenience and high performance with features that include 101 Alphanumeric Memory, Retractable Antenna, Dual Nam, Automatic Redial, Super Speed Dialing, Battery, Overnight Charger, Carry Case, and more. Now just....

$374.95*

Model Micro Tac Lite Base**
#1750739

*After $25 Instant Service Activation Rebate. Price w/o Activation $399.95

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MICRO TAC LITE CELLULAR PHONE

This popular pocket-sized cellular phone from Motorola combines convenience and high performance with features that include 101 alphanumeric memory, retractable antenna, dual NAM, automatic redial, super speed dialing, battery, overnight charger, carry case and more. Now just...

$439.95*

Model Micro Tac Lite**
#1705832

*After $25 Instant Service Activation Rebate. Price w/o Activation $464.95

MOTOROLA

MICRO TAC ULTRA LITE CELLULAR PHONE

WITH VIBRA CALL

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Motorola's lightweight champion of cellular phones tips the scales at only 5.9 ounces and contains a unique ring selector that includes a setting for vibrate, just like a pager! Other features include 101 alpha-numeric memory, memory scroll, recall, two batteries, rapid charger, carry case, and more for only ....

$599.95*

Model Micro Tac Ultra Lite**
#1794986

*After $25 Instant Service Activation Rebate Price w/o Activation $624.95

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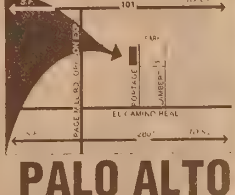
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ANSWERING MACHINES

Panasonic

ANSWERING MACHINE

Answering System with Auto-Logic Operation, Tone Remote Control, Digital Display, Message Memo Recording and remote turn on, Auto-Logic Operation automatically rewinds, plays messages, stops at the last message and resets itself at the touch of one button.

$39.99

MODEL KX-T1000
#1498194

Panasonic

DUAL MICRO CASSETTE ANSWERING SYSTEM

Panasonic's new dual micro cassette answering system offers an LCD Call Counter, marker message, room monitor, auto disconnect, electronic auto disconnect, electronic volume control, audible message alert, and much more for only...

$69.95

MODEL KX-T2100
#1740208

Panasonic

ALL DIGITAL ANSWERING MACHINE
WITH VOICE TIME/DAY STAMP

WHILE THEY LAST

Panasonic's versatile all digital answering machine comes equipped with 18 minutes of total recording capacityand voice promps for time, AM/PM, voice remote menu, number of messages, pre-recorded greeting messages, and time/day stamp on each message. Other features include LCD readout, quick playback, message alert, room monitoring, 2-way and memo recording, and much more! Now just...

$119.95

MODEL KX-T8000
#1719873

Panasonic

ALL DIGITAL ANSWERING MACHINE
WITH VOICE TIME/DAY STAMP

This Panasonic all digital answering machine comes equipped with 30 minutes of total recording capacity and voice promps for time, AM/PM, voice remote menu, number of messages, pre-recorded greeting messages, and time/day stamp on each message. Other features include LCD readout, quick playback, message alert, room monitoring, 2-way and memo recording, and much more! Now just...

$159.95

MODEL KX-T8100
#1914607

BUSINESS PHONES

Panasonic

SPEAKERPHONE

For the office or home, this phone has all the features you need. It has a speaker phone, 28 station automatic dialer, automatic redial and much more.

$49.95

MODEL KX-T2315
#1530100

Panasonic

TWO LINE SPEAKERPHONE

A perfect compliment to your home or office, this two-line speakerphone comes equipped with 3-way conferencing, 20 number programmability, seperate ring switches for each line, and a local mode function. Now only...

$69.99

MODEL KX-T3120
#1510676

Panasonic

TWO LINE SPEAKERPHONE
WITH LCD DISPLAY

From Panasonic comes this fully featured 2-line speakerphone with LCD display, 3-way conference call, volume control for speaker and handset, 24-station one-touch dialer, auto redial, flash, separate ringer tone, line status indicator, memo dial, and save redial, all for only...

$89.99

MODEL KX-T3175
#1745122

Panasonic

THREE LINE SPEAKERPHONE
WITH LCD DISPLAY

From Panasonic comes this fully featured 3-line speakerphone with LCD display, 3-way conference call, volume control for speaker and handset, 48-station one-touch dialer, auto redial, flash, separate ringer tone, line status indicator, memo dial, and save redial, all for only...

$179.95

MODEL KX-T3185
#1768039

10 CHANNEL CORDLESS PHONES

Panasonic

10 CHANNEL AUTOSCAN CORDLESS PHONE

Panasonic's newest cordless phone comes equipped with a retractable flexible rubber antenna, sound charger technology, which helps filter out background noise resulting in enhanced sound quality, and 1-way paging between the base and handset. An excellent value at only...

$79.95

MODEL KX-T3850
#1764839

Panasonic

10 CHANNEL CORDLESS PHONE
WITH QUICK CHARGE & SECURE GUARD SYSTEM

Panasonic has developed the latest in cordless technology by incorporating a Quick Charge system that will enable you to recharge its battery in one hour providing 7-day standby or 3 hours providing 21-day standby! The Secure guard system can help keep your conversations private and help prevent eavesdropping scanners or baby monitors. Other features include one paging, 10 number memory, last number redial, flash, auto security code settings and much more for only...

$118.95

MODEL KX-T3940
#1820937

Panasonic

2-LINE 10 CHANNEL CORDLESS PHONE
WITH SPEAKERPHONE

The KX-T3980 is one of the most versital phones Panasonic has ever developed! When you combine the convenience of a cordless phone with the flexibility of a 2-line capability along with speakerphone, 3-way conference, 2-way page, and auto intercom, it all adds up to a value too good to pass up!

$179.95

MODEL KX-T3980
#1671595

Panasonic

10 CHANNEL CORDLESS SPEAKERPHONE
WITH DUAL MICROCASSETTE

This top of the line cordless dual microcassette answering system with sound charger technology delivers sound so clear, you will hardly believe your ears! Some of the features included are: 2-way paging, intercom, auto security system, message alert, 2-way and memo recording just to name a few. Now only...

$199.95

MODEL KX-T4400
#1735370

FAX MACHINES

Panasonic

FAX
WITH ANSWERING MACHINE & ANTI-CURL

This fully featured Fax from Panasonic comes equipped with an auto-logic answering system and an anti-curl mechanism, as well as copier capabilities. It's the perfect secretary for your home or business!

$349

MODEL KX-F180
#1877490

Panasonic

FAX MACHINE
WITH PAPER CUTTER AND ANTI-CURL

This Fax from Panasonic comes equipped with an auto-logic answering system and auto paper cutter, as well as copier capabilities, speakerphone, paper save, paper curl reduction technology, 100 number speed dialer and much more. Now just...

$399

MODEL KX-F280
#1886159

Panasonic

PLAIN PAPER FAX MACHINE
WITH 20 PAGE MEMORY

The ultimate plain paper fax from Panasonic features a jumbo LCD display, 70 page paper cassette, adjustable letter/legal tray, 32 level halftones, polling, activity reporting, 20 page document feeder, broadcasting to 128 locations, fax transfer, enlargement and reduction copier functions, fax/tel switch, 28-station one-touch dialer, 100-station speed dialer, telephone directory with alpha-search, and much more! Now just.....

$997

MODEL KX-F3000
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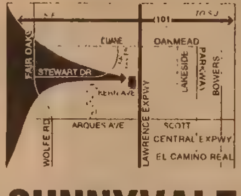

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SPEAKERPHONES

SPEAKERPHONE
WITH 20 NUMBER MEMORY

The convenience of a hands free speakerphone allows you to do other tasks while carrying on a conversation on the phone. Features include 20 number memory, auto redial, mute, in-use indicator light, and more. An excellent addition to any home or office at only...

$\$19^{99}$

#1915723

BELL Phones
BY NORTHWESTERN BELL PHONES
A U S WEST COMPANY

SPEAKERPHONE
WITH LCD DISPLAY

This Northwestern Bell speakerphone comes loaded with features like an LCD which displays time & date, alarm & timer, and number called display, on-hook dialing, 30 number memory, busy redial, flash, pause, speaker volume control, and much more for only...

$\$39^{95}$

MODEL ET 2500S
#1810185

AT&T

SPEAKERPHONE

With features like hands-free speakerphone, 32 number memory, hold, receiver and speakerphone volume control, last number redial, flash, ringer control, programmable pause, mute, just to name a few, this AT&T speakerphone will be an excellent addition to any home or office at only...

$\$49^{95}$

MODEL 725
#1671621

Panasonic

LCD READOUT SPEAKERPHONE

This outstanding value from Panasonic offers a 12-digit LCD readout for phone number, clock, call timer(minutes and seconds), and operating modes. Perfect for the home or office at only...

$\$69^{95}$

MODEL KX-T2365
#163665

MULTI-LINE PHONES

BELL Phones
BY NORTHWESTERN BELL PHONES
A U S WEST COMPANY

TWO LINE PHONE

Perfect for the home office with multi-line needs, this 2-line phone from Northwestern Bell features line-in-use LEDs, 3-way conferencing, 15 number memory, hold, flash, pause, and ringer controls. An excellent value at...

$\$39^{99}$

MODEL
Easytouch 2202
#1890905

Panasonic

2-LINE SPEAKERPHONE
WITH LCD DISPLAY

From Panasonic comes this fully featured 2-line speakerphone with LCD display, 3-way conference call, volume control for speaker and handset, 24-station one-touch dialer, auto redial, flash, separate ringer tone, line status indicator, memo dial, and save redial, all for only...

$\$89^{95}$

MODEL KX-T3175
#1745122

GENERAL ELECTRIC
GE. We bring good things to life

FOUR LINE SPEAKERPHONE

This deluxe four-line speakerphone is capable of handling up to four lines with a maximum of 16 stations. Its convenient 32 number one-touch telephone memory, along with all station page, intercom, call transfer, busy redial, flash and much more make this the perfect addition to any home or office at just......

$\$149^{95}$

MODEL 2-9450
#1768637

AT&T

3-LINE SPEAKERPHONE

AT&T's multi-functional centrex compatible 3-line speakerphone comes equipped with page, intercom, 3-way conference, LCD display, 40 number memory, auto line selection, hold, do not disturb function, auto-redial, mute, programmable pause, call transfer, flash, seperate ringer controls, and more, all for only......

$\$179^{95}$

MODEL 843
#1853892

ALL DIGITAL ANSWERING MACHINES

AT&T

ALL DIGITAL ANSWERING MACHINE

This AT&T answering system utilizes tapeless digital technology to ensure consistent recording quality over the life of the system. The convenience of new message playback, outgoing message bypass, remote system turn on or off and remote message recording makes this an excellent value at only...

$\$69^{95}$

MODEL 1710
#1853906

GENERAL ELECTRIC
GE. We bring good things to life

ALL DIGITAL ANSWERING MACHINE
WITH THREE MAIL BOXES

With three mailboxes to choose from, members of the household can have messages stored for them in their own mailbox! The all digital capability eliminates the need for moving parts and allows for instant playback of incoming messages-no need to wait for a tape to rewind or fast forward! Other features include voice time/day stamp, two outgoing messages, digital counter, selective message erase and much more for only...

$\$89^{95}$

MODEL 2-9876
#1839261

SONY.

ALL DIGITAL ANSWERING MACHINE
W/ VARIABLE SPEED MESSAGE PLAYBACK

Sony has taken digital technology to a new dimension with this beautifully-designed, all digital answering system. The variable-speed message playback controller allows you to speed up (to 1.6 times speed) or slow down (to 0.7 speed) playback of messages without changing pitch. In addition, you can skip, repeat or backspace messages. The multi-function LCD display functions as a digital message counter, clock, call timer, answer mode indicator, and back-up battery strength indicator, while the voice time/day stamp automatically records the time of the message receipt after each message. Other features include: Voice-guided operation, Pre-recorded greeting, Announce-only mode, Memory usage guage, Audible message alert, Remote on/off, Auto interrupt, Memo recording, 2-way conversation recording, and Adjustable ring delay. An invaluable addition to any home or office at only...

$\$129^{95}$

MODEL
TAM-1000
#1803901

Panasonic

ALL DIGITAL 4 MAILBOX ANSWERING SYSTEM
W/SPEAKERPHONE & VOICE TIME/DAY STAMP

Panasonic's fully featured answering system comes equipped with 30 minute storage capacity, voice time/day stamp, speakerphone, voice menu, 4 personal mailboxes with security, lcd display, message scan, programmable alarm, message transfer, 2-way record, selective message delete, message skip/repeat, auto disconnect, auto redial, 10 number memory, and much more! An invaluable addition to any home or office at just...

$\$199^{95}$

MODELKX-T2880
#1841989

COPIERS

Canon

COMPACT COPIER

The size of Canon's compact personal copier makes it perfect for the home or office where space is at a premium. Some of the convenient features of this model includes the ability to copy on both sides of copy sheets, exposure control, and more. Now just...

$299

MODEL PC-310
#1849208

SHARP.

LETTER/ LEGAL PERSONAL COPIER

Compact and lightweight, this Sharp copier weighs only 17.5 lbs. and fits virtually anywhere! Yet, it even lets users make multiple copies up to legal size (81/2" x 14") originals onto a wide range of papers from 81/2" to 4" x 6", allowing an expanded range of applications. Other features include auto exposure. 50 sheet paper tray capacity, auto start function and much more! An excellent value at just.....

$399

MODEL Z-27
#1892837

SHARP.

LETTER/ LEGAL COPIER
WITH STATIONARY PLATEN

This durable Sharp copier utilizes a stationary platen, a space-saving feature that eliminates the possibility of the copier bumping into objects while in operation. The variable zoom ratio setting adjusts between 70°﹪ and 124°﹪ in 1°﹪ increments giving you more copying flexibility and versatility. Other features include large capacity 250 sheet tray, continuous copy (up to max. 50), auto start, and letter/legal capacity. An excellent value at..

$699

MODEL Z-85
#1903780

XEROX

COPIER
WITH STATIONARY PLATEN & REDUCTION/ENLARGEMENT

If you're looking for versatility and premium performance in a copier your search is over! Xerox has designed a copier that incorporates reduction/enlargement technology enabling you to reduce a copy 75% and 95%, and enlarge to 124%, a 250 sheet paper tray which adjusts to hold memo to letter to legal size paper, built-in automatic exposure which scans documents for degrees of lightness or darkness to determine the appropriate exposure setting, multi-copy capability of 1to 50 copies, letter and legal size copying, and manual bypass, all backed by the experts at team Xerox. Now just...

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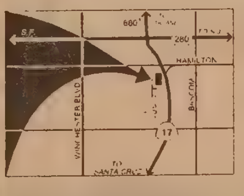

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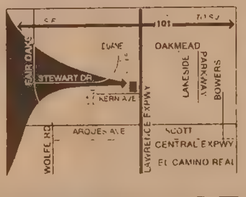

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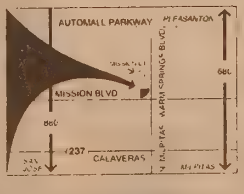

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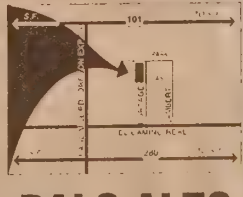

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$2895

TDS 320
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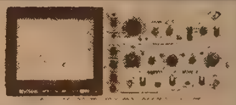
$1995

TAS 465
#1823505

HITACHI



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V-522
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This lightweight, slim-line scope has become the standard of high performance. Hitachi scopes have earned acclaim from field-serving and maintenance personnel worldwide. 2 Channel, Single Time Base, 3 Year Warranty

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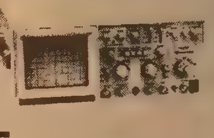

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- Variable duty cycle; CAL position for 50% duty cycle

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MODEL
3011B
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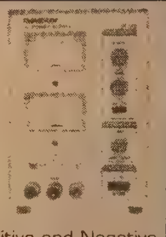

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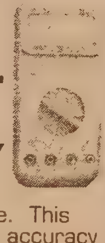

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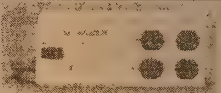
MODEL PC-300
#1791466

also available
MODEL PC-1800 $224.95

WAVE TRACKER™ NOISE AND SURGE FILTER



Waber's new "Wave Tracker" provides the ultimate in noise filtration and surge protection.

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- NEMA 5-15 Plug and Receptacles
- Lifetime Warranty
- Available in 4, 6 and 8 outlets

WT4 #1791628

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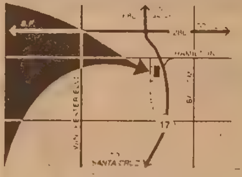

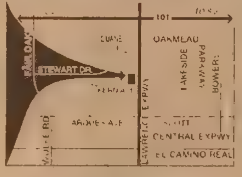

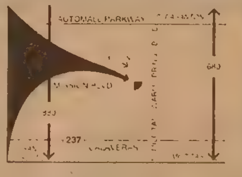

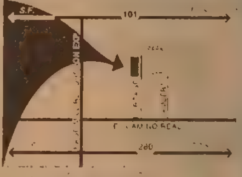

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A high quality heatsink and fan combined to cool your Intel 486 CPU. Many inferior versions are out there, but don't be fooled. Come see the PCubid version and you will see why this is the choice of engineers. Easy to attach with thermal adhesive (supplied).

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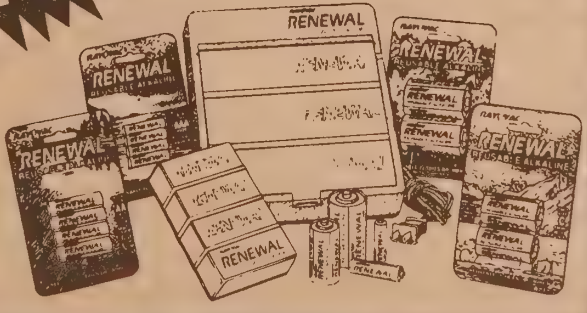

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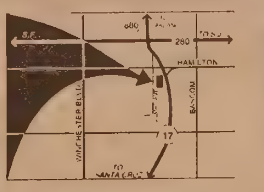

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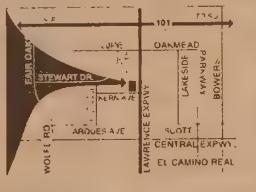

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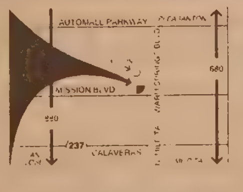

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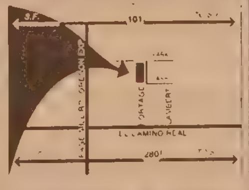

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Product Spotlight

UPDATES

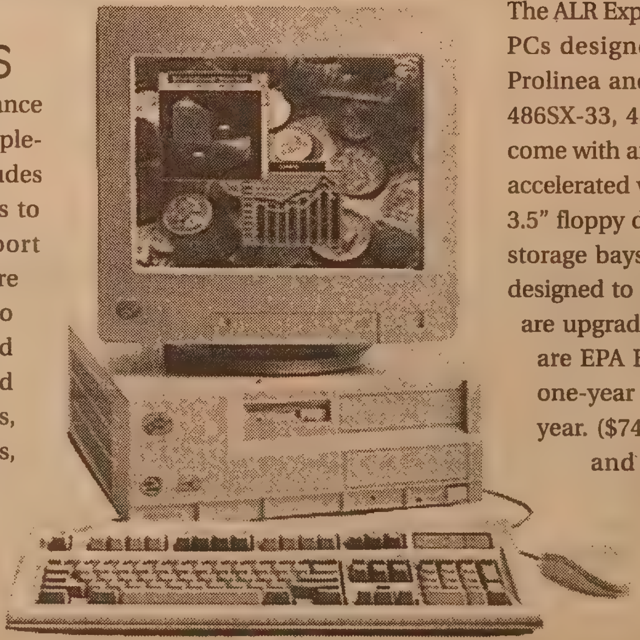
- **Adobe Systems** released **Adobe Illustrator 5.5 for Macintosh**, which includes the regular Macintosh and Power Macintosh versions. Registered owners can upgrade for $149 and get the Deluxe CD-ROM Edition, Adobe Acrobat, and 220 fonts free until September 2. Adobe Systems, Inc., 1585 Charleston Rd., PO Box 7900, Mountain View, CA 94039-7900. 1-800-521-1976.
- **Aladdin Systems** began shipping **Stuffit InstallerMaker 2.0**, a new version of its popular installer program. Aladdin Systems, 165 Westridge Dr., Watsonville, CA 95076. (408)761-6200.
- **Atex Publishing Systems** released **Preference for Windows v1.1**, enabling Windows users to obtain full Atex functionality. Atex Publishing Systems Corp., Bedford, MA. (617)276-1132.
- **Charles River Analytics** shipped **Open Sesame! v1.1**. The new version puts dynamic work sets on the desktop or Apple Menu or in the startup items folder, has a reminder feature, and includes speech synthesis and voice recognition capabilities. The upgrade is free to registered 1.0 users, and $99 retail. Charles River Analytics Inc., 55 Wheeler St., Cambridge, MA 02138. (617)491-3474.
- **DayStar Digital** announced **price reductions on most of its processor upgrades for the Macintosh**. The FastCache Quadra is now $199, and the 40MHz Turbo 040 with 128K cache is $1149. DayStar Digital, 5556 Atlanta Highway, Flowery Branch, GA 30542. (404)967-2077.
- **DeltaPoint** released **FreezeFrame 2**, a Windows desktop publishing and graphics package for beginners and small-office and home users. Version 1 users can purchase it with 1st Design only for $29.95, or pay $19.95 more to include 1st Press. New customers can buy FreezeFrame 2 for a limited time for $49.95. DeltaPoint, Inc., 2 Harris Ct., Suite B-1, Monterey, CA 93940. (408)648-4000.
- **FastTrax International** released **FastTrax 5.0**, an upgrade to its hard disk optimization utility. The new version has increased flexibility and faster operation. The upgrade costs $30, and a competitive upgrade is available for $40. FastTrax International, 880 Ensenada Ave., Berkeley, CA 94707. (510)525-3510.
- **HSC Software** shipped **InterActive 2.0**, an upgrade to its integrated multimedia development system. Registered users can upgrade for $89.95; SRP is $295. HSC Software, 1661 Lincoln Blvd., Suite 101, Santa Monica, CA 90404. (310)392-8441.
- **Montage Software** announced **new ports of its object-relational database management system** to Silicon Graphics, Inc. and Digital Equipment Corp. Alpha platforms. Montage Software, Inc., 1111 Broadway, Oakland, CA 94607. (510)652-8000.
- **Nomadic Systems** announced **v2.0** of its **SmartSync** automatic file-transfer and synchronization solution. Suggested list price is $169.95 for one user, $495 for five-user packs. SmartSync users can upgrade to v2 for only $19.95 plus shipping, for a single-user license. Nomadic Systems, Inc., (415)335-4310.
- **Ontrack Computer Systems** released **Disk Manager Mac v3.0**. Current users can upgrade for $25. Ontrack Computer Systems, 6321 Bury Dr., Minneapolis, MN 55346. 1-800-752-1333.
- **The Software Toolworks** released **Mavis Beacon Teaches Typing! v3 for Windows**, the first version for Windows users. It lists for $49.95. The Software Toolworks, 60 Leveroni Ct., Novato, CA 94949. (415)883-3000.
- **Working Software** announced **free Toner Tuner 1.0.6 upgrades** for registered owners. Working Software, Inc., PO Box 1844, Santa Cruz, CA 95061-1844. 1-800-229-9675.

New Products

PC Hardware

IBM Performance Series

The Performance Series is a new line of high-performance desktop computers from IBM ValuePoint. The series implements 64-bit graphics on the motherboard, and includes IBM's own SelectaBus technology, which allows users to choose and upgrade the system's local bus to support either VESA or PCI. Performance Series computers are available with CPUs ranging from 486SX-33MHz to 486DX2-66MHz to the 486DX4-100/50MHz CPU and come preloaded with either OS/2 2.11 or PC DOS 6.3 and Windows 3.11. They have plug-and-play capabilities, making it easier to install peripherals and adapter cards, and are easily expanded and upgraded. All models are covered by a three-year warranty that includes twenty-four-hour technical support. IBM Personal Computer Co., Route 100, Somers, NY 10589. 1-800-426-2968.



Left: IBM Performance Desktop 466 DX2

ALR Express PCS

The ALR Express is a line of competitively priced entry-level PCs designed to compete with lines like the Compaq Prolinea and the HP Vectra. Available in three models—486SX-33, 486DX2-50, and 486DX2-66—the Express PCs come with an Intel CPU, 4MB of RAM upgradable to 36MB, accelerated video graphics with 1MB video RAM, a 1.44MB 3.5" floppy drive, three 16-bit ISA slots, and room for three storage bays. They also include a hard drive docking bay designed to simplify upgrades and repairs. The computers are upgradable to 486DX2-50, 486DX2-66, and Pentium; are EPA Energy Star compliant; and are covered by a one-year warranty and free on-site service for the first year. ($745 for the 486SX-33, $1045 for the 486DX2-50, and $1344 for the 486DX2-66) Advanced Logic Research, Inc., 9401 Jeronimo, Irvine, CA 92718. (714)581-6770.

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VESA Local Bus 486DX 128K DX2-66/DX-33
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Landmark speed: 220/111

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486DX 128K DX2-66/DX-33
Complete Systems
- Pentium Ready
- 4MB RAM exp to 32MB
- 8K Internal Cache
- Shadow RAM

Landmark speed: 220/111

$1185/1065

486SX 128K SX-33/SX-25
Complete Systems
- 4MB RAM exp to 32MB
- 8K Internal Cache
- Shadow RAM

Landmark speed: 111/90

$925/885

386DX 128K 40/33
Complete Systems
- 4MB RAM exp to 32MB
- Shadow RAM

Landmark speed: 65/55

$825/815

386SX 40/33
Complete Systems
- 4MB RAM exp. to 16MB
- Shadow RAM

Landmark speed: 42/24

$785/775

CASE & POWER SUPPLY

Minitower w/200 Watt	$38
Desktop w/200 Watt	40
Mid Tower w/230 Watt	65
Full Tower w/250 Watt	85
200/230 Watt power supply	25/30
230/250 Watt (AT)	39/41
200 Watt Green PC Power Supply	48

VGA CARDS

VGA 800x600, 256K	$24
Trident 512K	34
Oak 1MB	55
Trident (8900CL) 1MB	55
Tseng ET 4000	69
Oak 1MB WIN ACC (ISA)	59
Fahrenheit 1280 Win Acc (VESA)	145
Diamond Stealth 24 (VESA)	145

ADD ON CARDS

Super I/O (16550) +IDE	$45
SCSI Controller (8 Bit)	38
SCSI +IDE	57
RLL Controller	39
Adaptec 1542C	175
MGP	14
Super I/O (16550)	29
IDE/I/O (2S, 1P, 1G)	13
4 Floppy Controller	25
Ethernet (8 Bit/16 Bit)	40/50
10 Base-T (16 Bit)	50

FLOPPY DRIVES

Teac 1.2MB 5.25"	$45
Teac 1.44MB 3.5"	39
1.44 Floppy Diskette	40¢

MISCELLANEOUS

387SX33/25 Math Co	$30/30
387DX-40/33 Math Co	35/35
MS mouse (OEM)	25
Logitech Mouseman (OEM)	35
Mouse	8
Media Magic 16-bit Sound Card	89
Sound Pro Speakers 80W	70

CD ROM

Sony CDU31A/33A Double Speed	$85/150
Mitsumi Doublespeed	150
Panasonic 562B Double Speed	150

KEYBOARDS

101 Enhanced/IBM P/S2	$15
Maxiswitch/Keytronic	28
Adaptor IBM AT	2.99

MODEM

2400 Baud Internal	$25
9600/2400 Fax/Modem	38
14,400 Fax/Modem Int./Ext.	99/99

MOTHERBOARDS & CPU

386SX-25/33/40	$60/65/75
386DX-16/25/33/40 (no cache, no CPU) Add $15 for 128K Add $25 for 256K	45
486DX-33/66 (no cache, no CPU)	45
386DX-40 128K	89
486SX-25/33 128K (Intel)	155/185
486DX-33 128K (Intel)/CYRIX	315/235
486DX2-66/128K (AMD)	425
486DX2-66 128K (Intel)	455
486SLC2-66 (IBM)	250

TAPE DRIVES

250 MB Colorado	$155
250 MB Archive	150
120 MB/250 MB Tape	18/18

MONITORS

12"/14" Mono (refurbished)	$35/45
14" Mono (Sealine)	76
14" Mono VGA	90
14" SVGA (.39)	180
14" SVGA (.28)	210
14" Non-Int SVGA	230
15" Arche 215AXL	350

HARD DISK

40 MB Conner	$119
120 MB Conner/Maxtor	175
170/210 MB Conner/W.D.	179/199
245 MB Maxtor/Conner	225
340 MB Maxtor/Conner	245
420 MB	270
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1GB Conner/Quantum	699

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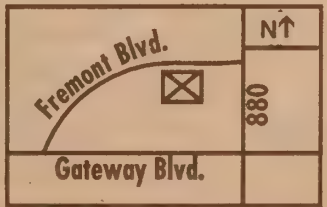
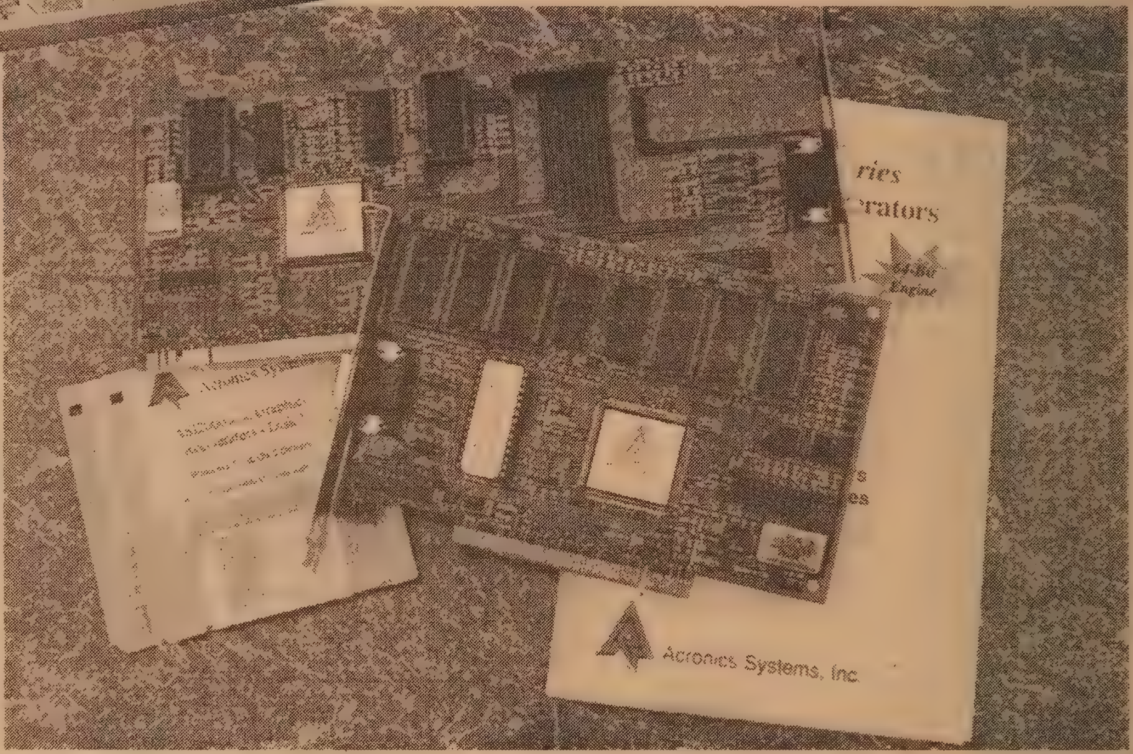


Product Spotlight



Top: the ALR Express from Advanced Logic Research, Inc.; right: the ASI2000 Taurus PCI graphics accelerator board.

ASI2000 Taurus PCI

The ASI2000 Taurus PCI is a powerful graphics accelerator board based on a true 64 bit GUI engine and a 24-bit true-color palette DAC. It combines a Cirrus Logic 32-bit external local bus interface with a 64-bit path to the DRAM frame buffer, eliminating video-memory bottleneck and allowing for maximum system-to-video bandwidth. The Taurus PCI supports up to 1280 x 1024 non-interlaced resolution at 16.8 million colors and comes standard with 1MB of 64-bit DRAM, upgradable to 2 or 4MB. It is designed for Pentium technology but will work just as well on a 486 PCI bus system; it greatly improves Windows 3.1 and AutoCAD 11 and 12 performance; and it is optimized to support Windows NT, OS/2, AutoShade, 3D Studio, Lotus, Word, WordPerfect, WordStar, and Ventura Publisher. The Taurus PCI comes with a Green PC display power manager for energy cost savings. A lower-resolution, less expensive model, the Orion VLB, is also available. ($395 for the 4MB Taurus, $179 for the 1MB Orion) Acronics Systems, Inc., 46560 Fremont Blvd., Suite 203, Fremont, CA 94538. (510)770-3400.

Spider Black Widow Plus

The SPiDER Black Widow Plus is a Windows GUI accelerator with a 32-bit graphics coprocessor. This coprocessor assists the main accelerator chip to achieve the optimum processing speed for GUI applications. It includes drivers for Windows NT 3.1, Windows 3.1, OS/2 v2.1, AutoCAD Releases 11 and 12, WordPerfect 5.1, Lotus 1-2-3 Release 2.x, and others, and drivers are regularly updated and added. The Black Widow Plus offers up to 1600 x 1200 resolution with sixteen colors, a flicker-free refresh rate up to 90Hz non-interlaced, 16-bit and 24-bit hardware acceleration in both high and true color modes, 1MB of fast VRAM which is expandable to 2MB, and SPiDER's custom window-like software installation. ($255) SPiDER Graphics, Inc., 580 Charcot Ave., San Jose, CA 95131. (408)526-0535.

SCSIVUE Diagnostic Terminators and Cables

Granite Digital has released the SCSIVue Active Diagnostic Terminators and SCSIVue Gold Diagnostic Cables in support of the new 68-pin SCSI Wide platform. The SCSIVue Terminators constantly adjust the signal voltage to what the SCSI Bus demands. They also have a diagnostic indicator incorporated into their design that analyzes what is occurring on the SCSI Bus and displays the information through LED lights. The Gold Diagnostic Cables use more gold on the contacts and connectors than other SCSI cables, improving the signal quality and reducing unwanted noise interference. The cables are constructed of triple-insulated, heavy 26-gauge wire with ferrite beads to eliminate static electricity, and are covered by a lifetime warranty. ($59 for terminators, $39 for cables) Granite Digital, 3101 Whipple Rd., Union City, CA 94587. (510)471-6442.

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ETHERCARD ELITE/A FOR PS/2	198
ELITE 32 Dual Segment EISA Coax	657
3COM 3C579 32-bit Coax/5-Pack	247/1,042
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NE3200 32-Bit EISA CX & TP	480
NE2/32C 32-Bit MC	566

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ELITE ULTRA Combo/6-Pk/24-Pk	132/728/2,693
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ELITE 32T Dual Segment EISA TP	657
3COM 3C579 EISA 10BaseT/5-Pack	247/1,042

Token Ring

3COM Tokenlink III 16/4/10-Pk	405/3,750
TokenLink III EISA 16/4	671
IBM Token Ring 16/4 Adapter II	553
INTEL Token Express 16/4 ISA/EISA	372/622
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PCMCIA/Parallel Port Adapters

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Credit Card 10BaseT Adapter	261
Credit Card Token Ring 16/4 Adapter	480
NATIONAL SEMI PCMCIA Ethernet Adapter	189
Additional Media Coupler for Thin/10BT	79
SMC ElitePort EtherNote Combo	235
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Pocket ENET III Combo(BNC & 10BaseT)	330
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Concentrators & MAUs

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Elite 4000C TR Mau 8-port/16-port	723/1,153
MADGE 8 Station Token Ring Hub	490
3COM Linkbuilder TR 3C510180	1,912

SNMP Manageable Concentrators

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1701 12 Ports w/SNMP module	1,065
SNMP Module for 1012	289
ALLIED TELESIS 12 ports w/SNMP module	1,186
3COM Linkbuilder FMS II TP Hub-12 ports	625
Linkbuilder FMS II TP Hub-24 ports	1,102
DAVID SYSTEMS ExpressNet 12-port w/SNMP	1,248
HEWLETT PACKARD Advanced Stack 12-port	752
Advanced Stack 24-port/48-port	1,170/2,089
Advanced Stack SNMP module	485
NETWORTH 3/6/10 Slot Chassis	677/935/2,081
24 Port 10BaseT Module/Smart Module	1,655/2,554
16 Port Snappable Hub	930
16 Port SnapNet Bundle (1 Hub/5 Nic)	1,267
16 Port SnapView Bundle (1 Hub/HubView Sw)	1,296
48 Port Snappable Bundle	2,603
24 Port TriSegment Stackable Hub	1,288
24 Port TriSegment Mgmt. Hub	2,041
PowerPipes Ethernet/FDDI Switching Hub	7,487
SYNOPTICS 2803 16 ports w/AUI	808
2804 16 ports w/Fiber Optics	1,177
2814-04/2814-05 16 ports	2,135/1,693
3000N 12 Slot Chassis	1,814
3308A 12 Port module	1,182
3314A-03 Mgmt. module w/ basic SNMP	2,064
3314A 04 Mgmt. module w/ advance SNMP	3,266

Network Management

3COM Transcend LinkWatch Software	286
ASANTE View for Windows (In-Band/Out-of-Band)	710
CHEYENNE Monitrix Network Mgmt.	583
FRYE NetWare Management	339
HEWLETT PACKARD OpenView Interconnect	2,723
OpenView Workgroup Manager	1,420
INTEL LanDesk Manager	1,070
LanDesk SNMP Gateway	569
LanDesk Response	712
LanDesk Traffic Analyst	720
LanDesk OpenView for Windows	1,789
NETWORTH Hubview or HubView for NMS	733
NOVELL Lanalyzer for Windows v2.1	1,055
NetWare Management System	1,692
NetWare Management Agent (Single)	338
NetWare Management Agent 20-pack	5,382
NetWare LANalyzer Agent [illegible] (Single)	1,008
NetWare LANalyzer Agent (Multiple Segment)	1,692
SABER Lan Workstation 1st node/add 1	129/39

Repeaters

TUT Systems XL1501 (Single unit)	1,029
XL1502 (2BNC/2RJ11)	1,448
XL1503 (1BNC/1RJ11/1AUI)	1,086
XL1504 (4BNC/4RJ11/1AUI)	2,897
XL600+ 600' Repeater (1 Pair)	500

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Dual Port Repeater BNC/BNC	293
Quad/Octo Port Repeater (4 BNC/8 BNC)	440/809

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ARCserve v5.01 NLM 25/50 users	890/1,082
ARCserve v5.01 100/250 users	1,181/1,536
ARCserve v5.01 500/1000	2,982/5,934
MacAgent/SCO Unix Option	330/337
Changer Option for v5.0	465
Stacker Option	470
PALINDROME Backup Director NLM	569
Network Archivist NLM	1,224
Expansion Module (Doubles Capacity)	576
Archivist Autoloader	575
Archivist Enhanced Autoloader	1,445
LEGATO NetWorker (Single Server)	555
COLORADO Power Tape 1.1GB w/o Ctrl	650
Power Tape Int. 2GB SCSI Tape Drive w/Ctrl	1,055
Power Tape Ext-25 2 GB SCSI Tape Drive w/Ctrl	1,251
Power Tape 50-4 GB SCSI Tape Drive w/Ctrl	1,664
Power Tape Ext 50-4 GB SCSI Tape Drive w/Ctrl	1,870
CONNER Backup Exec NetWare 3.X/4.X NLM	658
Conner 7251QI 500 MB w/Ctrl	529

Bridges/Routers

3COM NetBuilder Local Ethernet	3,637
NetBuilder Remote	5,146
ROCKWELL NetHopper NH-1 TCP/IP Async Rtr	1,661
NetHopper NH-3 TCP/IP Async Router	2,835
NetHopper NH-P NetWare Async Router	1,375

Network Modems/Comm. Servers

GATEWAY Lan Expander 1-port/4-port	624/1,235
Lan Access 4MB/8MB	1,391/1,542
MICROCOM DeskPorte Fast 28.8 (v.FAST)	523
DeskPorte Fast 28.8 (v.FAST) w/Carbon Copy	576
DeskPorte Fast ES 28.8 Fax/Modem	299
DeskPorte Fast EP 28.8 Fax/Modem	399
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SHIVA Net Modem/E 9600 BNC	1,567
Lanrover 4E/8E ports w/o modems	2,346/3,145
U.S. ROBOTICS Modem Sharing Kit V32BIS	532
Dual Modem Sharing Kit	937
Shared Access CommServ	1,495
MOTOROLA DDS/MR56 V.35 or RS232	514
SW 56 II 4-Wire RS232/v.35	639/799
DIGIBOARD Digi 2-Port	200
Digi PC/4E 4-Port ISA	455
Digi PC/8E 8-Port ISA	588
EAGLE NW2000 2-port Wan Adapter	550
NW2000 to v.35 Cable	75
MICRODYNE Synchronous+ Wan Adapter v.35	880

Network Printing Solutions

CASTELLE Jetpress XIO BNC/10Base-T	381
Jetpress MIO for HP4/MIO PLUS	349/451
LANPress 10BT (1 PAR)	313
LANPress THIN/10BT (1PAR/1SER)	362
LANPress THICK/10BT (2 PAR/2SER)	512
DIGITAL PROD. NetPrint/150E 3 Parallel Ports	638
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EAGLE NPE400 1 LPT, BNC & 10BT	292
HEWLETT PACKARD JetDirect 10BT	340
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Network Fax Solutions

CASTELLE FaxPress 1000, 10BT/BNC	1,576
FaxPress 2000 2-Line/4-Line	2,693/3,493
CHEYENNE FaxServe NLM 5/250	259/1,116
FaxServe NLM 500/Unlimited	1,972/3,207
OPTUS FACSys Fax Software/Multi-Server	720/1,624
INTEL Satisfaxtion Modem 200/400	244/315
Net Satisfaxtion for 8 fax boards (20 users)	649
Net Satisfaxtion (1000 users)	1,040
DELRINA Winfax Pro for Networks (Server)	125
10/25/100 Users	608/1,350/3,042
Starter Kit (1 Server, 2 nodes)	270

Network CD-ROM

MERIDIAN CD-Net for DOS v4.31 (10 Users)	467
CD-Net for DOS v4.6 (10 Users/WAN)	648
CD-Net for NetWare (NLM-10 Users)	467
CD-Net for NetWare (100 Users)	938
CD-Net for NetWare (250 Users)	1,445
MICRO DESIGN SCSI Express for NetWare, MDI	558
SCSI Express for NW3.X, Non-MDI(20 Users)	910
SCSI Express for NW3.X, Non-MDI(250 Users)	1,332
CD-Rom LaserBank 600CD Ext. Sin./Dual	558/1,117
MICROTEST Discport Ethernet/Token Ring	599/799
Discport w/Plextor Ext. CD-Rom	1,026
Discport w/Plextor 4-Unit CD-Rom	2,598
Discport w/Plextor 8-Unit CD-Rom	3,922

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BACK-UPS 600/900/1250	289/422/561
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SMART-UPS 400/600/600RM/900	310/375/470/517
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BELDEN PVC RG58 or RG62 Cable (1000' min)	175
PLENUM RG58 or RG62 Cable (1000' min)	350
MICROTEST MT310 TP/COAX Scanner	750
MT350 Value Kit	1,918
Penta Scanner	3,110

Novell Software

Lan WorkPlace for DOS Single/10 Users	290/1,445
Lan Workplace for Mac Single/10 Users	289/1,437
Lan WorkGroup-5/10/20 Users	1,125/1,866/2,613
NetWare for Mac v3.12 200 Users	685
NetWare for Mac v4.0 Unlimited	851
Multiprotocol Router/Router Plus	720/1,032
NetWare NFS Single/5-pk	3,374/10,537
NetWare NFS Starter Kit	1,065
NetWare NFS Gateway 5/10 User	1,069/1,797
Global MHS v2.0 20 Users	358
Global MHS v2.0 50/100 Users	648/1,064
MHS v1.5 Network Edition 10 Users	140
MHS v1.5 Network 50/100 Users	504/733
MHS Multi-Network Edition 10 Users	140
MHS Multi-Network 50/100 Users	504/733
MHS Personal Edition	100
NSE Pro (NetWare Support Enc.) Subscription	500
Personal NetWare Single/5-Users	89/290
DOS 7 w/Personal NetWare	89

E-Mail

cc:MAIL DOS Platform	214
OS/2, Windows or MacIntosh Platform	359
Unix Platform	834
10 User license/25 User/100 User	250/612/2,387
Group Pack 10-pack DOS/WIN	656
Mobile/Remote	151/210
Remote Import/Export	95
Router	942
Link to SMTP/Link to UUCP	2,592/384
MICROSOFT PC Mail Server + 10 Users	485
PC Mail 5/20/100 Users	273/930/3,633
MHS Gateway/PROFS	708/3,405
SMTP/X400 Gateway	3,405/3,405
FAX Gateway	1,419

Network Utilities

BRIGHTWORKS Utilities for NetWare	359
Fusion Software 100-User	1,164
Automatic Inventory 100-User/250 User	534/763
CENTRAL POINT Anti-Virus for NetWare	889
Xtree Tools for Networks/Server Extension	565/442
Xtree Xtnet for NetWare	387
CHANTAL RAID (Software Only)	640
CHEYENNE InocuLAN (20/250 workstations)	326/655
Utils for NetWare 286/386	257
COREL Network (RAID/CDROM/OPTICAL sw)	420
FUNK App Meter	464
FRYE Early Warning System or Lan Directory	339
INTEGRA Oasas RAID (Software Only)	535
INTEL LanDesk Virus Protect (Single)	696
LanDesk Virus Protect 4-pk/20-pk	2,070/6,757
MICROTEST Lan Assist/Map Assist	265/360
SYMANTEC Norton Admin. 5/10 Users	247/438
Norton Admin. 25/50/100 Users	1,068/2,028/3,680

Peer-to-Peer Networking

ARTISOFT LANtastic 6.0 Network Starter Kit	375
LANtastic 6.0 Add-On Kit Coax/10BT	170
LANtastic 6.0 Software Single/5-User	99/354
LANtastic 6.0 Software 10/25 Users	637/1,272
LANtastic 6.0 Software 50/100 Users	2,118/3,460
Noderunner/SI Coax or TP	124
Noderunner/SI Combo	154
Noderunner/SI Coax/TP (5 pack)	423/440
Lantastic for MAC	589
Lantastic for TCP/IP Single/5 Pk.	220/883
CoreStream 5/10/25 Users	699/1,362/2,209
CoreStream 50/100 Users	2,754/4,026
MICROSOFT Windows for Workgroup V3.11	159
WFW V3.11 Add-On for Windows 3.1	69
WFW Starter Kit (Software/Hardware for 2)	399
NATIONAL SEMI Personal NetWare Starter Kit	260
One Station Expansion Kit	161

Groupware

LOTUS Notes Starter Pack for NetWare	959
Starter Pack for Windows	933
Group Pack (1 Server and 10 Nodes)	4,356
Server for OS/2/Win/SCO/AIX/SUN/HPUX	464
Clients for OS/2/Win/MAC/SCO/AIX/SUN/HPUX	464
Client Licenses 1/10/20/50/100	415/3,920/7.660/CALL
Document Imaging Server	2,697
Inbound or Outbound FAX gateway	2,344
Mail gateway for MHS	2,344

Wireless Adapters

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RangeLAN Roaming Software	99
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PCMCIA Wireless Adapter	674
ISA Wireless Adapter	652

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Product Spotlight

CD-ROMs

Interactive World Cup CD-ROM

The Interactive World Cup Soccer CD-ROM presents a complete history of World Cup championship games as well as fifty minutes of full-motion black-and-white and color video clips of World Cup goals, an analysis of each championship game played, historical team and player profiles, photos, graphics, sound clips, text, and statistics. It also includes multimedia features on the teams playing in this year's games. All of this is available in English, French, German, Spanish, and Italian, simply by toggling between the languages. Interactive World Cup Soccer is available for Windows-based PCs. ($49.95) Softbit, Inc., One Whitewater, Irvine, CA 92715. (714)251-8600.

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MICROSOFT. WINDOWS. COMPATIBLE
World Cup Interactive!
IBM
Exciting Video Clips, Team Portraits, Over 500 Action Shots, and all the Statistics of the World's Most Popular Sport!
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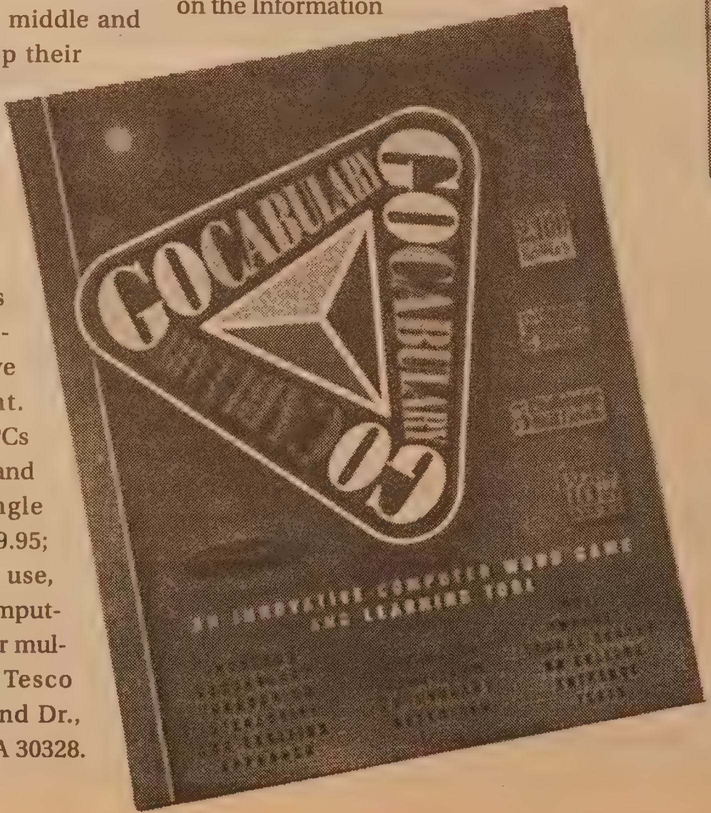
Statistics
Bio's of the Best Players
500 Action Shots
Teams from Around the World
Team Portraits
Over 45 Minutes of Video Clips
World Cup/1994
SOFTBIT
A Complete Record of the World Cup Games

Educational Software

GOcabulary

GOcabulary is a vocabulary game designed to meet the needs of secondary school students and English teachers. Based on sophisticated learning techniques, it uses an effective combination of knowledge, memory, and chance to help middle and high school students develop their vocabularies. Users can practice with over 2100 words built into five skill levels. Once a level is mastered, it's time to move on to the next level. GOcabulary can be used by single players or in groups, which is especially beneficial in a cooperative learning environment. GOcabulary is available for PCs (in both DOS and Windows) and Macintosh computers. (Single pack for individual users, $89.95; Teacher pack for classroom use, $199.95; Network pack for computer labs, $699.95; Site license for multiple networks, $899.95) Tesco Research, Inc., 750 Hammond Dr., Bldg. 19, Suite 200, Atlanta, GA 30328. 1-800-9PLAYGO.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PC Software

Immersive Systems Meme

Meme, a development system for virtual world software, is intended for the development of networked multi-user virtual worlds. Using the TCP/IP suite of networking protocols, Meme is ready for use on the Information Superhighway. Meme stores virtual objects in modules that contain executable code and data. The modules are designed to be interoperable and will behave identically on any computer platform running. It is currently available for MS-DOS and runs on a 386 or better with a math co-processor, VGA display, and at least 8MB of RAM. It produces real-time 3-D computer graphics at up to 50,000 polygons per second. The alpha release of Meme is now available for qualified developers. Immersive Systems, Inc., 4487 23rd St., #2, San Francisco, CA 94114. (415)641-VR4U. Email: immersive@kg6kf.ampr.org.

Linkpro PowerSync

PowerSync is a new Windows utility that allows users to easily synchronize their files between desktop and portable personal computers. It automatically synchronizes the most current version of any user-selected files and copies missing files from one PC to another. Unlike competitive products, PowerSync is installed only on the PC being used and not the one being accessed. It is compatible with most connectivity, networked, and operating system environments, including Novell or UNIX, that work with Windows 3.1. ($89.95) Linkpro, Inc., PO Box 6044, Irvine, CA 92716. 1-800-449-7962.

POWERSYNC
For Windows
Intelligent File Synchronization

Complaints Desk For Windows

Complaints Desk for Windows allows companies to record, store, and retrieve information on customer complaints, requests, and suggestions. Users can customize complaint, product, and service codes to fit their business. Complaints Desk can generate graphs that display complaints by time period, complaint type, department, or product, and it includes a word processor to generate response letters and create reports. It is network compatible and will run on

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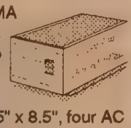
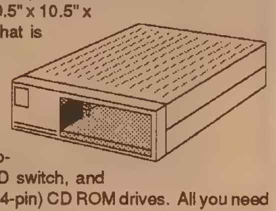
Computer Protection...



Better protection than a surge suppressor! These Sola MCR500 voltage regulators regulate line fluctuations of ± 15% to within 3%. Provides 500VA of sinusoidal output within NEMA voltage specs with an input voltage as low as 65% of nominal! Surge suppressors can't *raise* low voltage in brown-outs! Filters out spikes, noise and other transients, and isolates load from power line. Used units, 40 lbs., 17" x 8.5" x 8.5", four AC outlets, heavy line cord, circuit breaker. HSC# 14642 $95.00

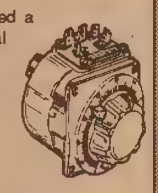
The case for external drives...



You could make a case against having external drives if your computer case has enough bays, but if it doesn't, don't make a case, buy this one! It is a 9.5" x 10.5" x 2.25" beige plastic case that is perfect for CD or hard disk drives. It features a fan-cooled 40W power supply, two external SCSI 50-pin connectors (for daisy chain installation) and internal ribbon cable, SCSI device ID switch, and audio cable for Sony-type (4-pin) CD ROM drives. All you need is an IEC power cord (not included) and a drive that needs a home! Incredible break-through price, hurry!

HSC# 14783 **$39.95**

NeatBitz...



A. Variable Autoformer -- commonly called a "Variac", although that name is a General Radio trademark, and these "Powerstats" are made by Superior Electric. 5A rating, variable 0-140VAC output. Used, open frame (i.e. not in a case) with large knob, dial plate. Very handy to have, no test bench should be without one! HSC# 14752 $37.50

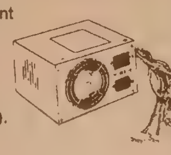
B. Ultrasonic Transducer Emitter/Receiver set -- the kind that are so handy for sonic ranging, intrusion detection or control projects. Identical .63" dia. housings have 40 KHz transducers made by Murata/Erie. Receiver is rated at -68dB min. sensitivity, transmitter is rated at 110dB min. sound level. Sold as a set. Specification diagram included. HSC#14682 $3.95

C. Camera flash unit -- (not shown) consists of a 2" x 2" printed circuit board of irregular shape that has a 1" long strobe tube with lens and reflectormounted on one side, and circutry mounted on the other. Add 1.5 VDC (an AA cell will do), and a momentary switch, and "flash" you're in business! HSC# 14702 $3.95

D. HPIB Cable -- genuine Hewlett Packard (#92220R) HPIB/GPIB interface cable, 1 foot long. Has dual stackable 24-cond. connector at each end (one is right angle). Fully shielded, rugged metal hoods. HSC# 14803 $12.50

E. Auto Cigarette Lighter Plug w/Coiled Cord -- perfect for radar detectors, handy-talkies, CD players, etc. Coiled cord is 8 ft. long, with a set of adaptors for most types of input jacks, good for 2A @ 12VDC. Compare at $9.95 at the Shack! HSC# 14747 $2.95

Super Computer Deals...



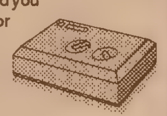
A. "Mini-tower" power supply, fits most Mini- and Mid-size tower cases as well as many small-footprint desk-top cases. 165W, measures 6" x 5.5" x 3.5", has normal motherboard connectors, three large and two small drive connectors and 10" long switch connection leads (switch not included). New! HSC# 14632 $24.95

B. Refurbished 1.44MB half-height floppy drive, Teac FD-235HF. Heads aligned, cleaned, good as new! 90-day warranty. These will go fast! HSC# 14742 Special! Reg. Price ~~$32.50~~ $29.95

C. Used, good condition 5.25" Half-height 360K Floppy disk drive, Teac FD-55BV-11-U. Hurry, 360's are getting even harder to find! 90-day warranty. HSC# 14667 $14.95

D. Hard/Floppy controller card -- controls up to two floppies and two MFM hard drives, 2:1 interleave. Hurry, MFM cards are no longer being made! DTC 5280 16-bit AT full length card. 90-day warranty. HSC#14680 $24.95

Give your Mac Vision!



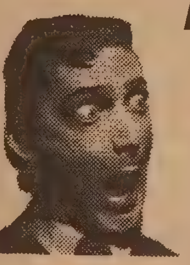
With MacVision (and a video camera) your Macintosh will be able to see the outside world! Capture video stills from any composite video source (camera, VCR, video disk) and you can commit a B & W image to a disk file for editing with your paint program. New in the box unit with cables and power supply. Works with Mac II, SE or Plus, System 4.1+

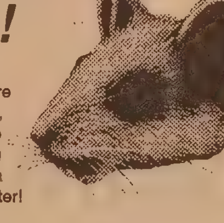
HSC# 80150 $39.95

It's More than a Game...It's History!

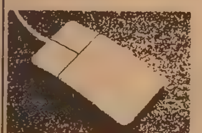
They should make more computer games like this one..."Their Finest Hour -- The Battle of Britain" by Lucasfilm Games. It is a historically accurate depiction of the air battles that convulsed England during the summer of 1940, and you can relive WW II history by flying a Supermarine Spitfire or a Junkers "Stuka" divebomber (or one of six other fighters or medium/heavy bombers). You get a realistic-looking cockpit instrument panel on your screen, and your chosen craft's performance is based on the actual abilities of the planes. One of the best things about this game (leave it to Lucasfilm to excel in this area!) is the book that accompanies it. It starts off with a 45 page history of the war up to this crucial turning point, and is interspersed throughout with period photographs, campaign maps, profiles and quotes of important personalities, and discussions of strategies. There are even diary entries from British and German fliers that give first-hand accounts of what aerial combat was like in those desperate days. All that is left to experience the realism of battle is to climb into your "cockpit", grab the joystick and follow the mission plan you have built. You can even turn on a "cockpit camera" to record your battle for later viewing. This game was one of the most popular flight simulation games going a couple of years ago, now you can fly along with the aces, and if you are good enough, change history! What a way to painlessly absorb a history lesson, by living it! IBM/DOS, EGA/VGA, AdLib compatible. HSC#14694 $9.95

Huge Mouse Invasion!

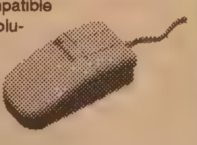




Well, no, enormous rodents are not running around here just yet, but we do have a rather large number of mouse-type pointing devices that are looking for a good home next to your computer! Adopt one today! Ee!:-eek!



A. High-Quality Optical Mouse (shown at left) -- serial interface (9-pin "D-sub") two-button mouse by Mouse Systems, comes with 7" x 7.75" mousepad. No mechanical parts to wear out or get dirty...no balls to clean! New, with driver disk, OEM version (no book or box). HSC# 14719 $14.95



B. MacPRO mouse -- three-button Mac compatible mouseby Animas (shown at right). 350 DPI resolution, Apple ADB interface (4-pin Mini-DIN) for Mac II, IIc, IIci, IIfx, IIsi, LC, SE, Classic, or other Macintosh computer with ADB port. Programmable "cdev" allows full programmability for all three buttons. You even get a paint program called Colorframe (included on driver disk). New in box with manual, mouse-mat, 90 day warranty. HSC# 14718 $19.95

C. Generic Mouse (Super economy version) -- three-button mechanical mouse for 9-pin "D-sub" type serial interface. New OEM version (sorry, no book, software or fancy box), 100% Microsoft Compatible, should work with most mouse drivers. HSC#14673 $4.95

D. Generic Mouse (Regular economy version) -- three button mechanical mouse, 100% Microsoft compatible, includes driver software. One year warranty. HSC# MSS3E $7.95

E. Mouse Mat -- got your mouse picked out? Great, now give it something soft and smooth to roll on ...a neoprene Mouse Mat! Reduces fatigue & wear on your mouse, poor little fellow! 9" x 10", neoprene backing and colorful fabric top. HSC# 15-MPAD 99¢

Hard Disk Full? Put the Squeeze on your Data with SuperStor!

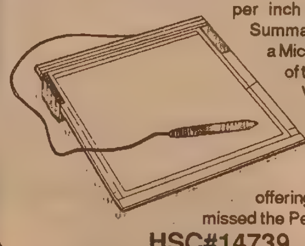
There are thousands of ironic stories in Software City, this is only one of them... Before Microsoft came out with DOS 6.0, there were dozens of thriving software companies writing all sorts of useful DOS utilities, including several varieties of Data Compression utilities. One company, Addstor, had a pair of products called SuperStor 2.0 and SuperStor PRO, which were finished, functioning, mature products. Giant Microsoft released DOS 6.0 with a data compression utility included, and Addstor saw their market evaporate. They eventually went under. The irony? DOS 6.0 had problems in the data compression utility, which required the birth of DOS 6.2...at the same time, a lawsuit by another utility provider against Microsoft was upheld, which we hear means that DOS 6.2's data compression utility may not be included anymore! Where does that leave Addstor? Still defunct, we're afraid, and no longer offering support, but we bought the remaining stock of their SuperStor and SuperStor PRO packages, and offer them at these amazing prices! We have had reports that Addstor's compression technology was more robust than some of the other companies' schemes.

A. SuperStor 2.0 will increase your disk capacity, defragment files, and make better use of your disk space. Need DOS 3.2 or later, not compatible with Zenith or Tandy DOS. HSC# 14674 $6.95

B. SuperStor PRO includes Windows-based JPEG/MPEG compression/expansion utility for .JPG, .BMP, .TIF, .TGA and .PCX graphics files (huge benefits, 20:1 compression typical!), Windows utilities, increased compression and speed over SuperStor 2.0, password protection, Tune-up Analyzer, Integral Disk Cache, Compression Preview, automatic transparent data compression, more! HSC# 14675 $14.95

-- Large quanitities of both types available, dealer inquiries invited! --

Sketch like a pro with HP SketchPro!



Well, the PenMates by Mouse systems featured in last month's ad are long gone. We are sorry if you wanted one but didn't get one, but maybe you will be interested in this item as an "upgrade"...the 7060A SketchPro by Hewlett Packard. It is a medium-format (11" x 11") digitizing tablet with up to 1219 lines per inch resolution, accurate to within .02" and can emulate Summagraphics Bit Pad 2 and Hitachi HDG1111B tablets, as well as a Microsoft Mouse. This allows the SketchPro to be used with most of the popular CAD and graphics programs, such as AutoCAD, Versa CAD and CADKEY. We are offering a brand-new-in-the-box tablet with pen-type pointing device, subtitute power supply and documentation for only $149.00 (list price was $599). A four-button "puck" type cursor is available directly from HP if you prefer that type of input device. We are offering a 90-day warranty on this high-quality U.S. product. If you missed the PenMates, don't miss this one!

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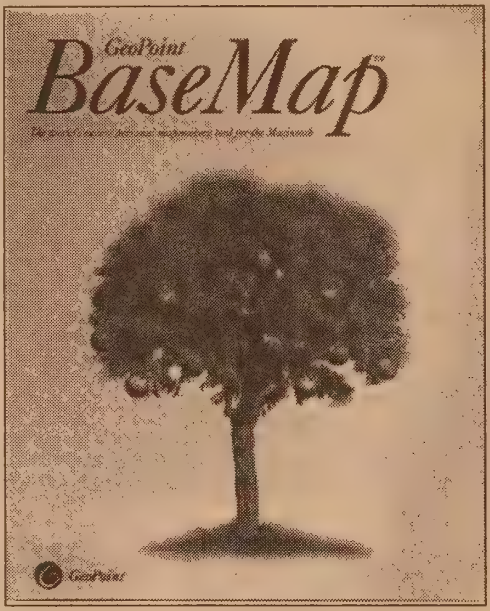
Novell, LANtastic, Banyan Vines, and 3COM LANs. ($179) Spectrum Computer Technologies, Inc., 2150 Liberty Dr., Niagara Falls, NY 14304. 1-800-879-3225.

Destiny Business Information & Planning System

Destiny Business Information & Planning System by Planet Corp. is a Windows-based, integrated software package for business planners. It includes a word processor; starting balance sheet; tax, accounts receivable, and loan amortization tables; inventory and depreciation; customized expense categories; salary, benefit, and commission tables; resource costs; and a complete professional business plan. Destiny can set up budgets and track results; evaluate and analyze business results; create reports; and forecast and present results via spreadsheets, reports, ratios, graphs, charts, and tables. ($249.95) Planet Corp., 100 Pleasant St., Worcester, MA 01609. (508)757-2840 or 1-800-366-5111 for direct sales.



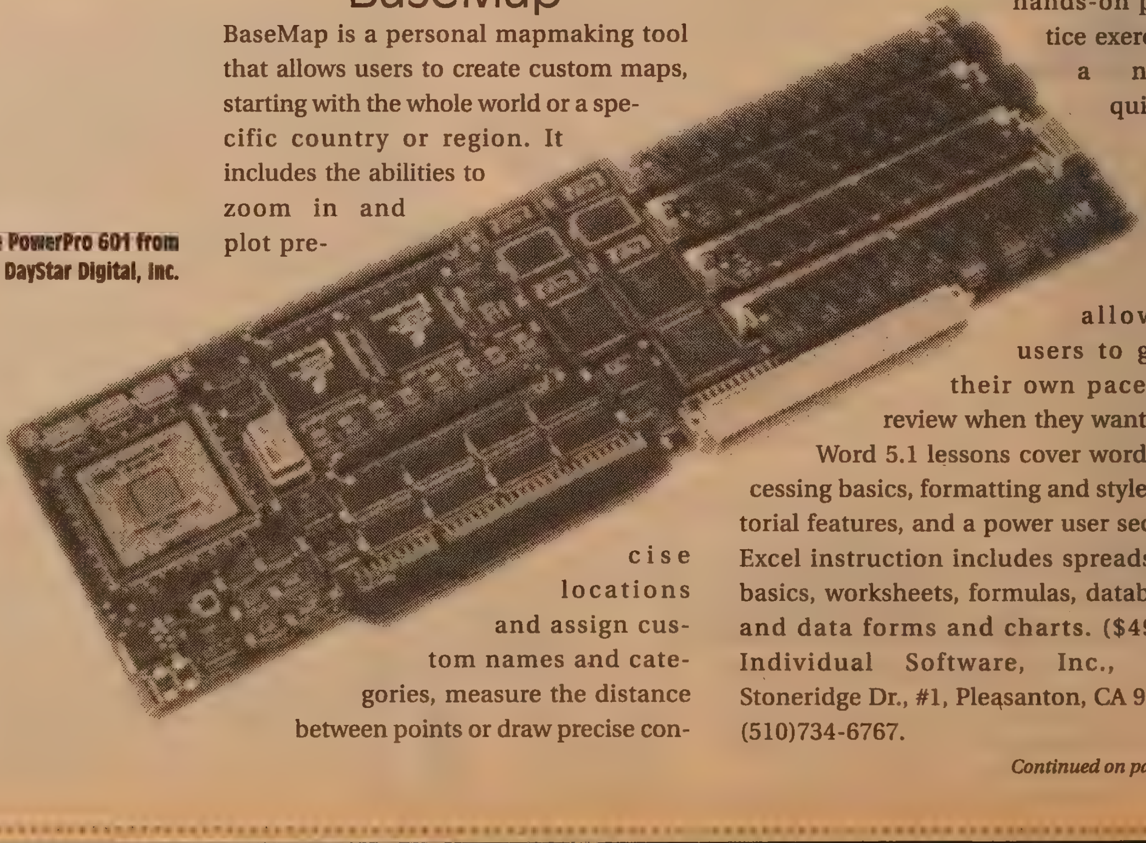
Mac Hardware

Macintosh Ethernet SCSI Connector

Tut Systems has added a Macintosh Ethernet SCSI connector to its Silver Streak product line. The connector allows users to attach a Mac to a Silver Streak Ethernet network, which provides 10Mbps throughput over ordinary telephone cord. It is available in two versions, the SCSI Desktop Connector for desktop Macs, and the SCSI PowerBook Connector for PowerBooks and DuoDocks. Silver Streak SCSI Connectors do not require an external power supply, as they use power from the Apple Desktop Bus port. Each connector comes with a telephone cord, network terminator, modular in-line coupler, ADB power cable, SCSI cable, EtherTalk driver, and diagnostic software. ($349) Tut Systems, Inc., 2446 Estand Way, Pleasant Hill, CA 94523. 1-800-998-4888.

DayStar PowerPro 601 Upgrade Card

The PowerPro 601, a PowerPC processor-based upgrade card, plugs directly into the PDS connector of the Macintosh Quadra 650, 700, 800, 900, 950, and Centris 650. It is available in 66 and 80MHz speeds. PowerPro 601, with its high performance memory and cache options, upgrades the Quadra or Centris to Power Macintosh 7100 and 8100 levels of performance. Using genuine Apple PowerPC ROMs ensures users who purchase DayStar upgrade cards that they will have the same level of compatibility with current Macintosh hardware and software products as Apple's solutions. (Suggested retail price of the 80MHz is $2339 and the 66MHz is $1799) DayStar Digital, Inc., 5556 Atlanta Hwy., Flowery Branch, GA 30542. (404)967-2077.

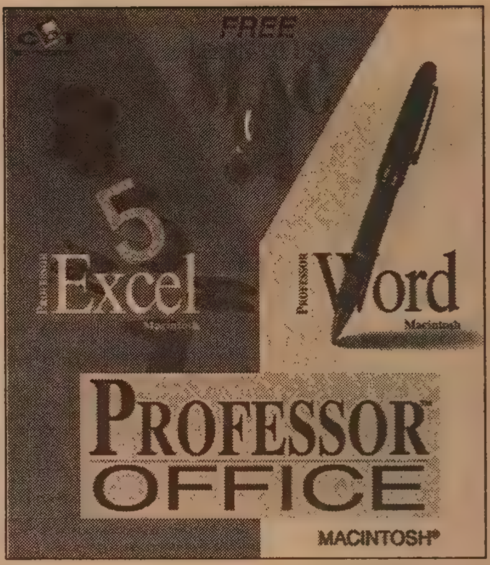


The PowerPro 601 from DayStar Digital, Inc.

Mac Software

BaseMap

BaseMap is a personal mapmaking tool that allows users to create custom maps, starting with the whole world or a specific country or region. It includes the abilities to zoom in and plot precise locations and assign custom names and categories, measure the distance between points or draw precise contours around locations, and cut and paste the finished map into other applications. Users can import and export data with BaseMap, for example, latitude and longitude coordinates can be imported; and data can be shared with fellow workers. BaseMap also includes the most recent political boundaries. ($149) GeoPoint, 401 China Basin St., Suite 200, San Francisco, CA 94107. (415)957-1644.



Professor Office For Macintosh

Professor Office for Macintosh is an interactive, computer-based training solution that provides instruction to business and home office users who want to increase productivity in Microsoft Word 5.1 and Excel 4. It includes a copy of Individual's Learn to Use Mac. Professor Office teaches through lessons, hands-on practice exercises, and quizzes, allowing users to go at their own pace and review when they want. The Word 5.1 lessons cover word processing basics, formatting and style, editorial features, and a power user section. Excel instruction includes spreadsheet basics, worksheets, formulas, databases, and data forms and charts. ($49.95) Individual Software, Inc., 5870 Stoneridge Dr., #1, Pleasanton, CA 94588. (510)734-6767.

Continued on page 236

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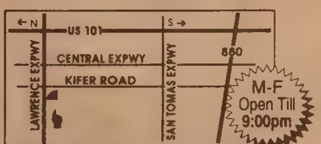

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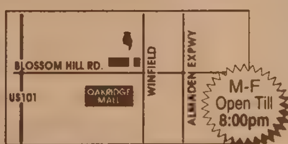

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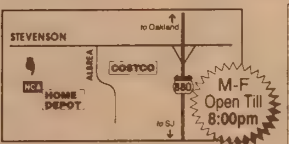

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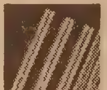

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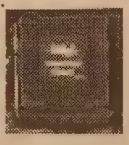

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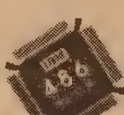

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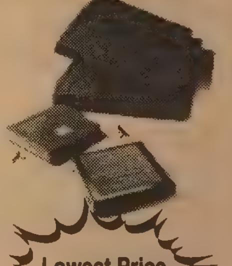

- SL Enhanced i486™ DX2
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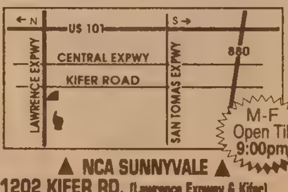

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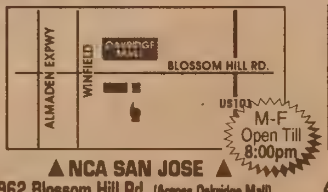

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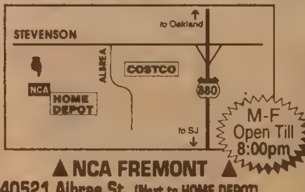

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486DX - VESA Local Bus Med Tower System

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Two VESA Local Bus Slots
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250W UL Power Supply
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486DX33 System **$859**

486DX50 System **$1079**

486DX2-66 System **$1139**

Alexis III Based On:

AMI Enterprise III Board

486DX - EISA/VESA Local Bus Med Tower System

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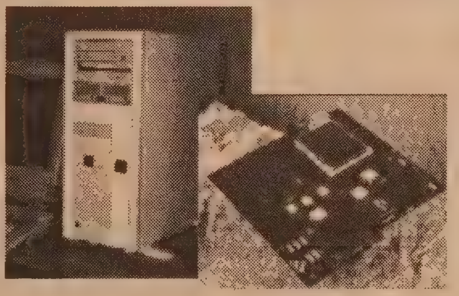

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Buffered VESA Local Bus Slots
0 RAM up to 256MB on Board (30PIN)
ZIF Expansion Slots
256K Cache
2FD / 2HD I/O Card Support up to 2.88M
Teac 1.44 or 1.2M Floppy Drive
Focus 8000 Extended Keyboard
Medium Tower
250W UL Power Supply
CPU Heat Sink
AMIDiag 4.0 Diagnostic Package Software

486DX33 System **$1169**

486DX50 System **$1359**

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For PCI Add $89

Alexis IV Based On:

AMI Enterprise IV Board

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Seven EISA Bus Slot
Two VESA Local Bus Slots
ZIF Expansion Slots
High speed Serial Ports UARTs
2FD / 2HD Card up to 2.88M support
Teac 1.44 or 1.2M Floppy Drive
Focus 8000 Extended Keyboard
Medium Tower
250W UL Power Supply
CPU Heat Sink
AMIDiag 4.0 Diagnostic Package Software

486DX33 System **$1049**

486DX50 System **$1239**

486DX2-66 System **$1299**

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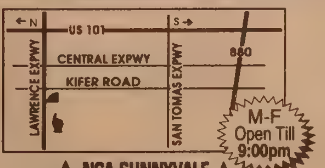

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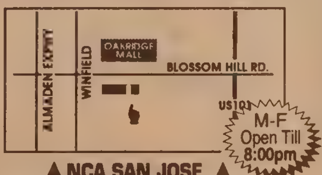

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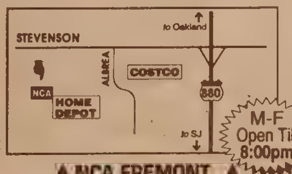

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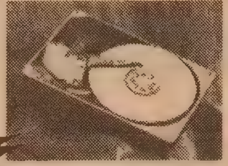

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7171A, 14ms, 1Yr. Warr.

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540MB IDE $349
MXT-540A, 8.5ms, 256K Cache, 2 Yr. Warr.

546MB IDE $339
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7290S, 14ms, 2 Year Warranty External $379

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7345S, 14ms, 64K Cache, 2 Yr. Warr. External $399

540MB SCSI ... $449
MXT-540S, 8.5ms, 256K Cache, 2 Year Warr. External $559

1.2GB SCSI $1195
MXT-1240S, 8.5ms, 3.5" HH, 256K Cache, 2 Yr. Warr. External $1315

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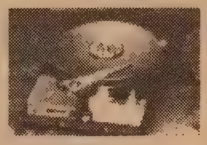

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12MS. MODEL#WD2340, 3Yr. Warr.

420MB IDE $269
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540MB IDE $369
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- DSP5350S
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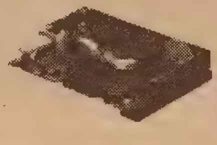
- 11.5ms
- Full Height



$1999

External 3.5GB $2199

Fast SCSI-II

CAPACITY	M/N	SIZE	RPM	SPEED	INTERNAL	EXTERNAL
1.0GB	3107L	3.5"X1"	5400	9ms	$799	$929
1.6GB	**3160S**	**3.5"**	**5400**	**9.5ms**	**$1095**	**$1219**
2.1GB	**3210S**	**3.5"**	**5400**	**9.5ms**	**$1349**	**$1459**
3.5GB	5350S	FH	5400	11.5ms	$1999	$2199
4.0GB	5400S	FH	5400	11ms	$2699	$3899

IBM®

1.0GB FAST SCSI-II
LOW PROFILE 3.5"X1"

- 750,000 Hrs. MTBF
- 8.6ms Access Time
- 5400 RPM
- 512K Cache
- 5Yr. Warr.

INTERNAL $779

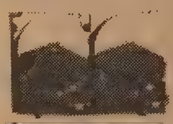
External $889

2.0GB FAST SCSI-II, 3.5", 8.6MS....... $1399

4GB Fast SCSI-II

5.25" FORMAT: CONTAINS TWO 3.5" HDAS

ADDRESSABLE AS ONE LUN



- Data Stripping Across Two Actuators
- 1MB Multi-Segmented, Dual Port Data Buffer
- <10ms Read Access Time
- 5400RPM
- Up to 20MB/Sec Transfer Rate (sync)
- 375,000 hous MTBF
- 5Yr. Warr. External $3399

$3199

364MB IDE $259
12ms, IBM364AT

527MB IDE $379
12ms, IBM527AT

728MB IDE $599
12ms, IBM728AT

CONNER®

IDE

210MB IDE $179
14ms, CFA210

340MB IDE $249
13ms, CFA340A

420MB IDE $259
<12ms, CFS420A LOW PROFILE 3.5" X1"

540MB IDE $339
<12ms, CFA540A LOW PROFILE 3.5" X1"

810MB IDE $599
<12ms, CFA810A LOW PROFILE 3.5" X1"

1.08GB IDE $699
<9.5 ms, CFA1080A

SCSI

	INTERNAL	EXTERNAL
340MB SCSI	$299	$419
CP30340S, 256K, 3.5"X1"		
540MB SCSI	$429	$539
CP30540S, 3.5"X1", 256K		
1.0GB SCSI	$699	$809
CFP1060S, 256K, <10MS, 3.5"X1"		

QUALITY EXTERNAL SCSI & SCSI-II DRIVES

For MAC, SUN, NeXT, and IBM Compatibles

- High Quality Metal Cases
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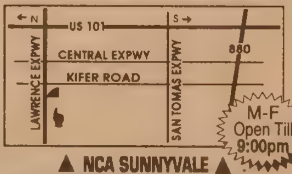

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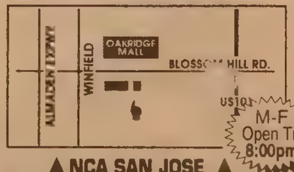

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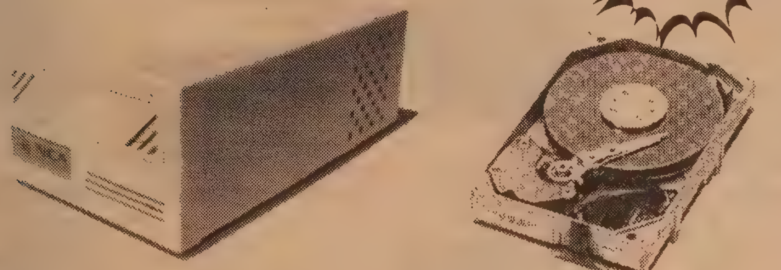

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IDE

CAPACITY	M/N		SPEED	SIZE	PRICE
127MB	GLS127AT	FOR NOTEBOOKS	17ms	2.5"X17mm	$249
170MB	GLS170AT		17ms	2.5"X17mm	$279
256MB	GLS256AT		17ms	2.5"X19mm	$339
170MB	ELS170A	32K	17ms	3.5X1"	$179
270MB	**LPS270A**	**128K**	**12ms**	**3.5X1"**	**$229**
340MB	**LPS340A**	**128K**	**Fast**	**3.5X1"**	**$258**
540MB	**LPS540AT**	**128K**	**12ms**	**3.5X1"**	**$359**

SCSI

CAPACITY	M/N		SPEED	SIZE	PRICE
160MB	GRS160S	FOR MAC POWERBOOKS	17ms	2.5" X17mm	$259
256MB	GLS256S		17ms	2.5"X19mm	$349

CAPACITY	M/N	CACHE	SPEED	SIZE	INTERNAL	EXTERNAL
170MB	ELS170S	32K	17ms	3.5X1"	$189	$299
240MB	LPS240S	128K	12ms	3.5X1"	$259	$369
270MB	LPS270S	128K	12ms	3.5X1"	$279	$389
340MB	LPS340S	128K	FAST	3.5X1"	$299	$409
540MB	LPS540S	128K	12ms	3.5"X1"	$389	$499
540MB	EMPIRE	512K	9.5MS	3.5"X1"	$499	$629
1.0GB	PD1080S	512K	9.5ms	3.5"X1"	$699	$819
1.8GB	**PD1800S**	**512K**	**10ms**	**3.5"**	**$1049**	**$1159**

▶ FACTORY NEW WITH FULL FACTORY WARRANTY

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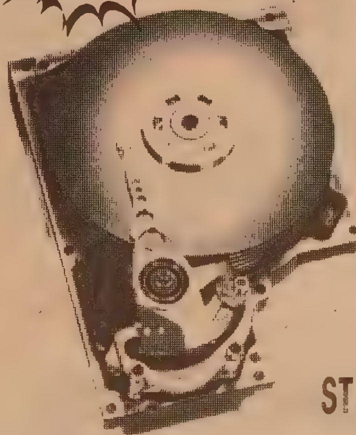

BARRACUDA I / 1.6GB

ST11950N

- ▶ 3.5", 8ms
- ▶ 7200RPM
- ▶ Fast SCSI-II
- ▶ 500,000MTBF

INTERNAL **$1489**

EXTERNAL $1599

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ST12550N

- ▶ 3.5", 8ms
- ▶ 7200RPM
- ▶ Fast SCSI-II
- ▶ 500,000MTBF

INTERNAL **$1699**

EXTERNAL $1829

ST12550W Fast Wide SCSI-II....$1799

IDE

CAPACITY	M/N	CACHE	SPEED	SIZE	PRICE
210MB	ST3243A	---	16ms	3.5"x1"	$199
245MB	ST3283A	128K	12ms	3.5"X1"	$269
263MB	ST3290A	64K	16ms	3.5X1"	$239
341MB	ST3391A	256K	13ms	3.5X1"	$299
452MB	ST3550A	256K	12ms	3.5X1"	$309
528MB	ST3600A	256K	10.5ms	3.5X1"	$439
130MB	ST9145AG	64K	16ms	2.5" NOTEBOOK	$259
209MB	ST9235AG	64K	16ms	2.5" NOTEBOOK	$339

SCSI

CAPACITY	M/N	CACHE	SPEED	SIZE	INTERNAL	EXTERNAL
344MB	ST3390N	256K	12ms	3.5"x1"	$349	$459
456MB	ST3550N	256K	12ms	3.5X1"	$339	$449
525MB	ST3600N	256K	10.5ms	3.5X1"	$389	$499
1.05GB	ST11200N	256K	10.5ms	3.5"	$749	$85[illegible]
1.0GB	**ST31200N**	**256K**	**9ms**	**3.5"x1"**	**$739**	**$849**
1.4GB	ST41651N	256K	15ms	FH	$1099	$1299
1.7GB	ST11900N	256K	9ms	3.5"	$1099	$1219
1.6GB	ST11950N	1024K	8ms	3.5"	$1489	$1599
2.1GB	ST42400N	256K	11ms	FH	$1699	$1899
2.1GB	ST12400N	256K	9ms	3.5"	$1449	$1559
2.1GB	ST12550N	1024K	8ms	3.5"	$1699	$1829
2.9GB	ST43400N	512K	10ms	FH	$2049	$2249
2.9GB	ST43401N	512K	10ms	5.25	$2199	$2499
4.3GB	ST15230N	7200RPM	8ms	3.5	$2999	$3299
9.0GB	ST410800N	512K	11.5ms	5.25	$4599	$4799

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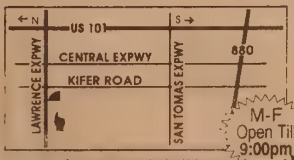

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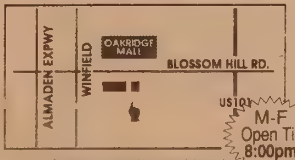

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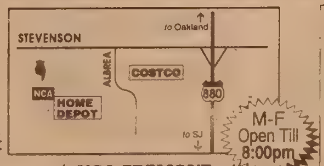

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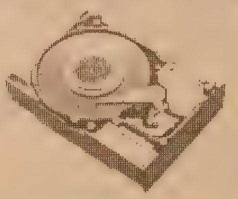
- MC4110S
- 8.5ms Seek Time
- 512K Cache
- 5400RPM
- 3.5"X1" Low Profile

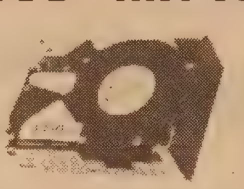


$699

EXTERNAL...$859

1.75GB 3.5" FAST SCSI-II OR IDE

- MC2217S/A
- 10ms Seek Time
- 5400RPM
- 3.5"



$899

EXTERNAL...$1089

IDE

	MODEL	RPM	SPEED	SIZE	INTERNAL
1.05GB	MC4110A	5400	8.5ms	3.5"	$729
1.0GB	MC2210A	5400	10ms	3.5"	$739
1.75GB	MC2217A	5400	10ms	3.5"	$929

SCSI

	MODEL	RPM	SPEED	SIZE	INTERNAL	EXTERNAL
1.0GB	MC2210	5400	10ms	3.5"	$729	$839
1.0GB	MC2210AV	Audio/Video			$899	$1029
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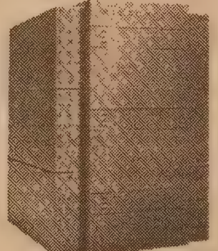

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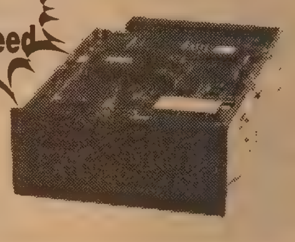

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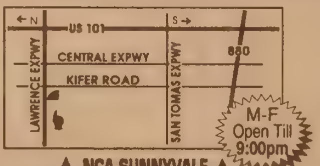

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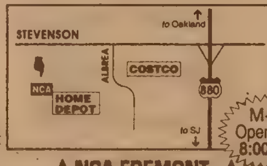

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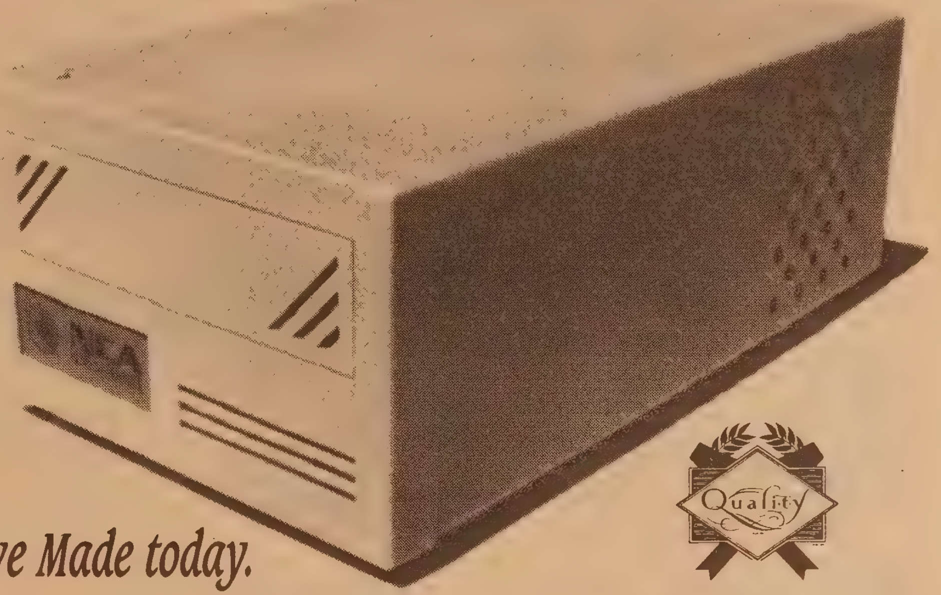

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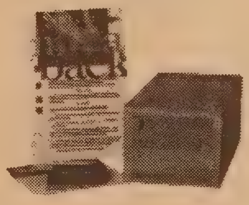

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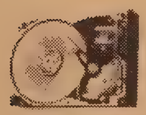

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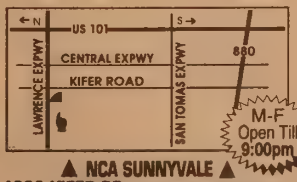
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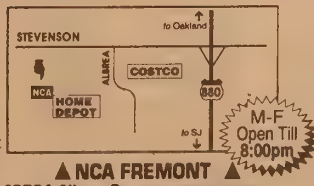
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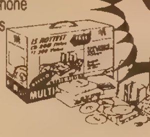

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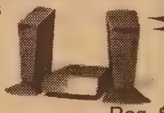

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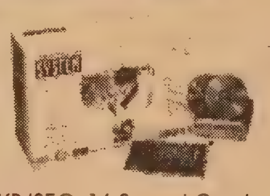

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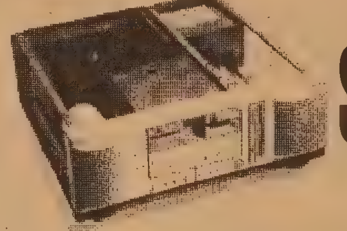

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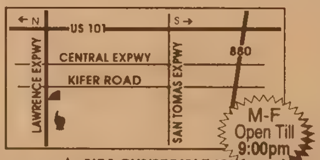

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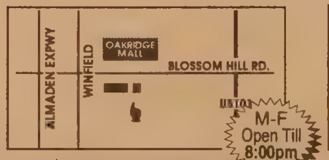

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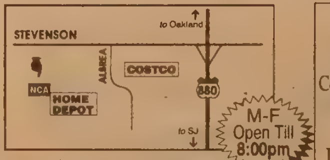

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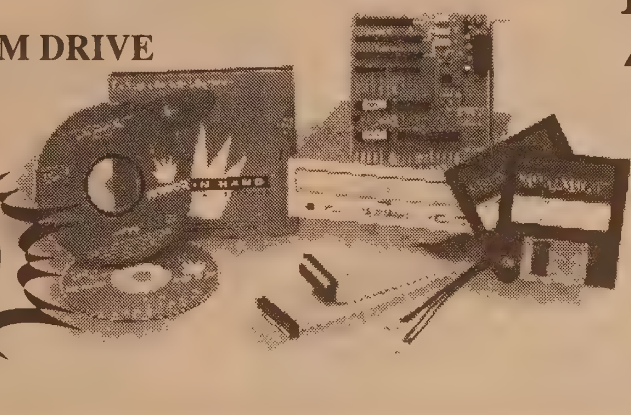

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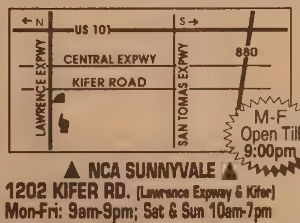

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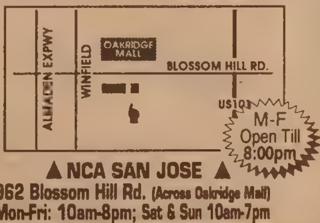

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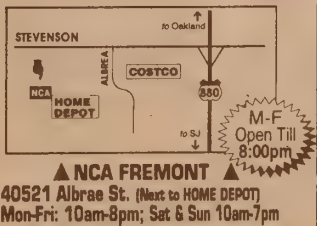

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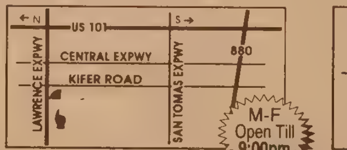

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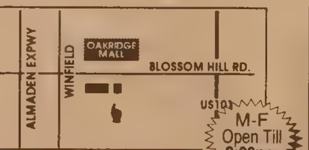

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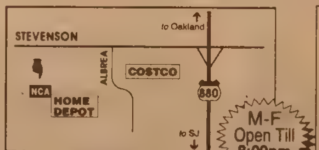

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CD ROM DRIVES

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FOR PC OR MAC

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INTERNAL SCSI 3401B

- ▶ SCSI CD-ROM
- ▶ 200ms, 330KB/Sec
- ▶ Multi-Spin/Multi-Speed
- ▶ 256K Cache Buffer
- ▶ Kodak PhotoCD
- ▶ Caddy Included

Optional MAC Software $10

$289

EXTERNAL **$399**

SONY 33A

NEW DOUBLE SPEED 300KB/SEC

- ▶ Controller Card
- ▶ Cables and Software

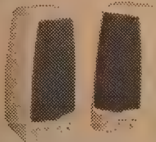
$139

Kit packaged by MediaMagic

SPEAKERS

RECOTON

AMPLIFIED SHIELDED STEREO SPEAKERS

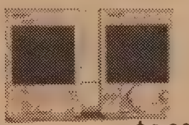


Includes AC Power Adapter
64555

$24.99

Sheilded Stereo Speakers By RECOTON 64540	$9.99

Labtec



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CS 180 2.5" 90 DEGREE PIVOT	$22.99
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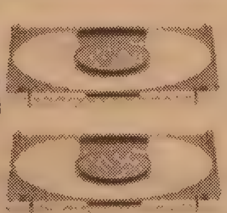
Dlax-20 Amplified Multimedia Speakers ..	$59.99

ALTEC LANSING

SEE AD ON PAGE 16

Quality Sheilded Computer Speakers CP-55	$4.99

CD ROM CADDIES



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Audio Cables for most CD-ROMs & Sound Cards

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SCSI CD ROMs

3Xi Internal SCSI CD ROM **$429**
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- • MiniChanger, featuring QUADRASPIN™

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- ▶ Caddy & Manual

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- ▶ External W/Caddy

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Tranfor T130 Controller with SCSI works..............$44

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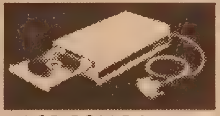
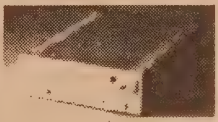


- ▶ **Double Speed** Parallel Port External CD-ROM Drive
- ▶ 250ms, 300Kb/Sec., Double Speed, Ideal for Notebooks
- ▶ or Labtops, Multisession Photo CD Comp.

SEE AD ON OTHER PAGE

TEAC CD-50



- ▶ SCSI-II Fast DUAL SPEED CD ROMs
- ▶ 265ms / 335Kb/sec
- ▶ Multi-session photo CD
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- ▶ Includes card & cable

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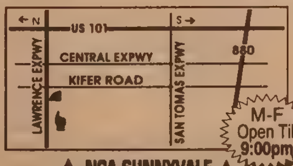

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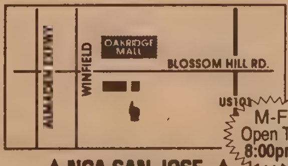

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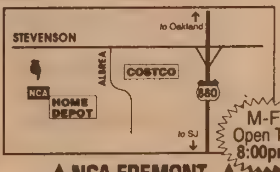

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CHINON

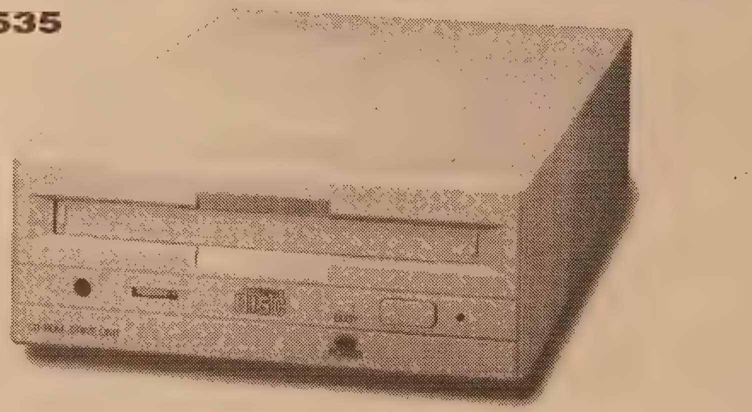
Dual Speed, Multisession-A Multimedia Workhorse!

Photo CD

PC Computing BEST
October 1993
Chinon CDX-535

PC MAGAZINE EDITORS' CHOICE
February 22, 1994
Chinon CDS-535

CD-535



Chinon's new 535 Series CD-ROM drives feature MPC™, Photo CD™, and QuickTime™ compatibility. These incredibly fast drives deliver CD-ROM data at a double speed of 300K per second and feature a SCSI-2 interface for use with both Macintosh and PC compatible computers.

The 535 Series CD-ROM drives are proven multimedia performers designed to excel in both MPC and QuickTime applications. Available for either internal or external installation, these drives work with ISO 9660, High Sierra, Macintosh HFS, XA, Multisession Photo CDs and standard audio compact disks.

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With SCSI Controller Card, Software & Terminator

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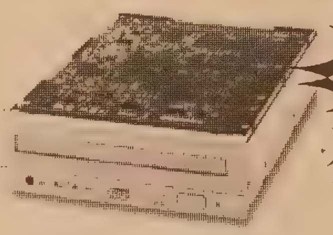
- ▶ Multisession Photo CD
- ▶ XA Compatible
- ▶ 256K Buffer
- ▶ 220ms Seek Time
- ▶ Double Doors
- ▶ Sealed Mechanism
- ▶ SCSI Controller Card
- ▶ Cable



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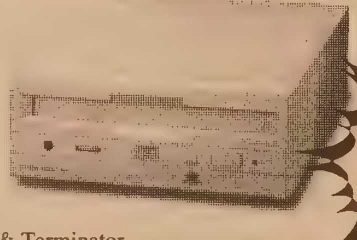
Internal Unit Only.....$309
Includes Caddy & Manual

External SCSI-CD Dual Speed CD ROM Kit

With SCSI Controller Card, Software & Terminator

- ▶ External SCSI-CD ROM Drive
- ▶ Multisession Photo CD
- ▶ XA Compatible
- ▶ 220ms/256K Buffer
- ▶ Double Doors
- ▶ Sealed Mechanism
- ▶ Drivers
- ▶ Audio Play
- ▶ Software
- ▶ Caddy
- ▶ Selectware Discription & Terminator



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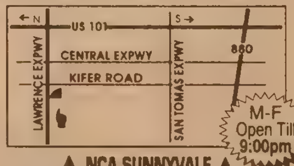

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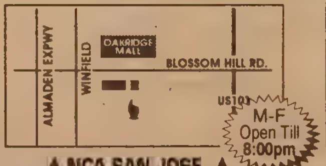

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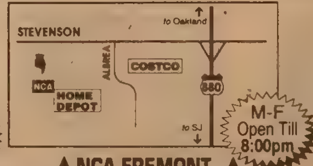

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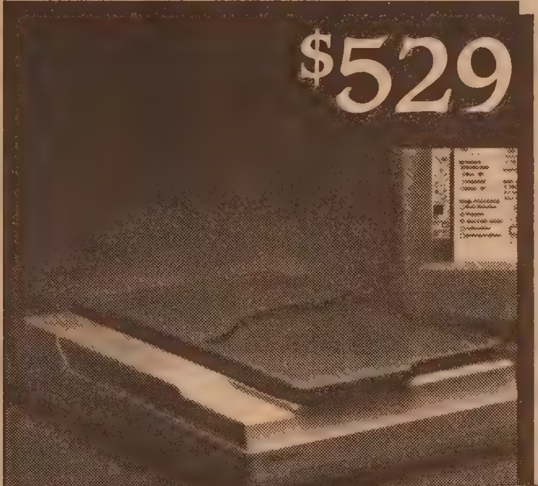
Flatbed Scanner

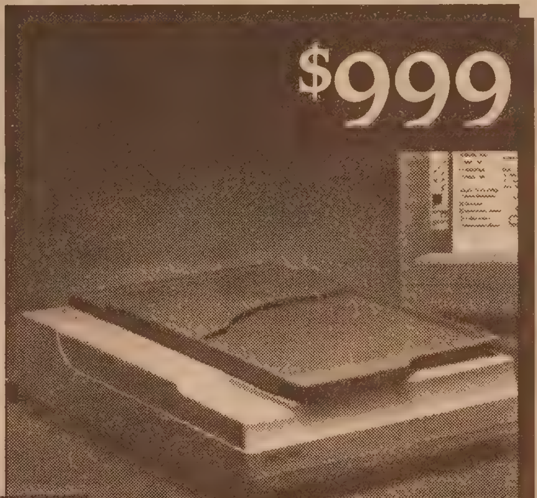
HIGH QUALITY, AFFORDABLE
FLATBED COLOR SCANNER

AVEC 2400 Flatbed 2400dpi Color Scanner



- **High Resolution up to 2400 dpi by interpolation (True 600 X 300)**
- **16.8 Million Colors & 256 grayscale levels**
- **Cold-scan technology**
- **Maximum Scanning area 8.5" X 14"**
- **Lamp life expectancy up to 35,000 hours**
- **SCSI-2 Interface for Windows and Macintosh environments**
- **Twain compatible**
- **Optional 50-page Auto Document Feeder (RELI ADF30)**
- **One-year Warranty and HOT-LINE Technical Support.**

The Reli 4816(T) One Pass Color Scanner



- **One Pass Scanner**
- **High Resolution up to 4800 dpi by interpolation (True 1600 X 400)**
- **16.8 Million Colors & 256 grayscale levels**
- **Cold-scan technology**
- **Maximum Scanning area 8.5" X 14"**
- **Lamp life expectancy up to 35,000 hours**
- **SCSI-2 Interface for Windows and Macintosh enviroments**
- **Twain compatable**
- **Optional 50-page Auto Document Feeder**
- **One-year Warranty and HOT-LINE Technical Support.**

Baby Alex's picture was scanned at 600dpi using the Relisys scanner and saved as a TIF file.

Software Included with the Relisys Scanner:

Flatbed Color Scanner for PC
- Caere's OmniScan™
- TWAIN Driver
- SCSI Cable & Terminator
- Power Cord

Flatbed Color Scanner for Mac
- Adobe Photoshop™ LE
- Art-Scan
- SCSI Cable & Terminator
- Power Cord

New Cold Scan Technology

Utilizing the Cold Scan technology, the cold cathode lamps are on during the scanning process only. And since the bulbs do not require ventilation, the chassis encapsulated to produce dust-free scanned images

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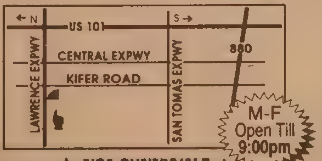

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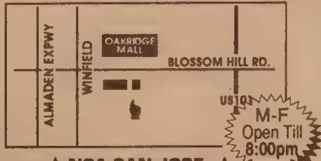

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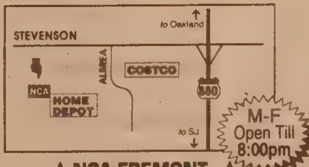

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- Supplied Device Drivers
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Parallel port External CD-ROM Drive

- 280ms
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- MultiSession Photo CD compatible
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- Supplied Device Drivers
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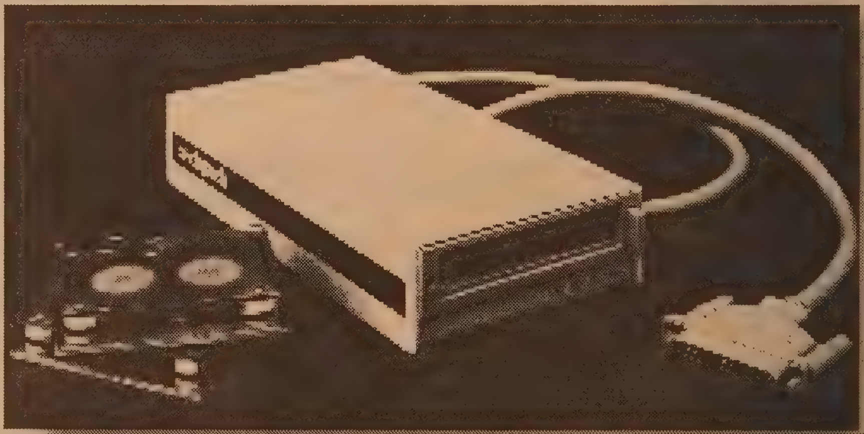

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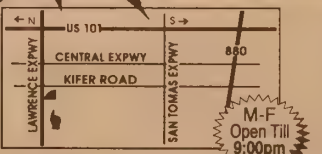
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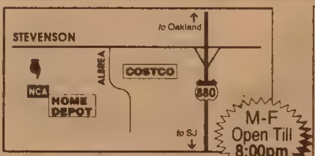
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- **Digital Audio Integration** - Click on RECORD, play you MIDI file and sing your heart out into the microphone to preserve the star performance of you and your MIDI band.
- **Speed Control** - Alter playing speed to suit anybody, old or young.
- **TrueType™** - Font Support - Select any font from the TrueType collection to make the words look the way you want... and so Grandpa can read'em.
- **Windows Sound Card Compatible** - Turtle Beach MIDI Karaoke supports any Windows 3.1 sound card. The MIDI section is totally General MIDI compatible.
- **Bitmap Import** - import any .BMP file to create custom backgrounds for your song text to scroll

$39

MIDI Mate...........$29

maui *Wavetable Synthesizer Upgrade*

•Now you can have all of the power of today's hottest new sound cards, plus a few new wrinkles, and keep your old sound card around for games!
•Ability to add new instruments via our SampleStore™ sample RAM. Maui is definitely the best of both worlds!

$139

NEW!

rio *Professional MIDI Synthesizer Module*

•Add Turtle Beach quality MIDI sound to your Turtle Beach Tahiti, Sound Blaster 16, or any other WaveBlaster compatible synthesizer connector.
•Ability to add new instruments via our SampleStore™ sample RAM. Never be limited to factory supplied instrument again. Comes with 256K of RAM for new samples, user upgradable with standard SIPP to 4MB.
•New Real-Time Efffects Processor. Place your music in a studio, concert hall or staium with a variety of effects such as reverb and echo. Effects are software-based for future upgradability.

$139

THE TURTLE TOOLS FOR MULTIMEDIA
Essential tools to use your sound card or MPC to its fullest

- **Midisoft Session™** - MIDI sequencer for developing or editing musical compositions
- **MIDI tune up™** - MINI file editor for non-musicians. Lets you graphically change tempo, key instrument and other setting
- **KeyPlayer™** - Non-musicians can play and record music using just your PC keyboard.
- **SoundAttach™** - Attach MID and/or WAV sound files to all Windows actions. Randomly if you like!
- **Sound Bank™** - Over 300 Sound Effects and Muscial pieces in 4 different WAV formats and Redbook audio for professional quality!

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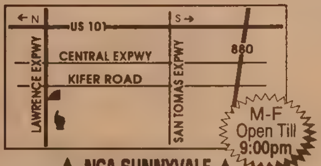

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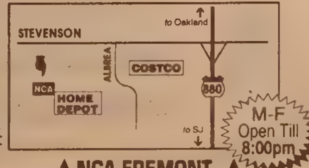

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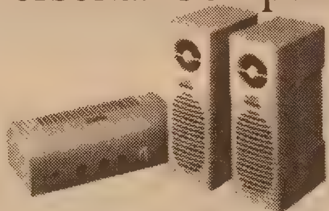
BEST NAMES

ALTEC LANSING *Audio Solutions for Computers!*

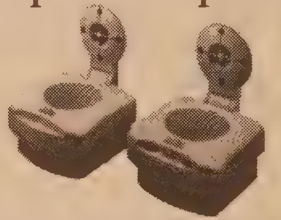
ACS50
Personal Computer Speaker System



$67.99

- Shielded Satellite Speakers Mount to Monitor
- Two Line-in Jacks Mix Two Audio Sources
- Volume Control to Adjust Combined Speaker Output
- ON/OFF Switch to Control Power to Speaker
- Headphone Output Connector for Private Sounds Monitoring
- Amplifier Control Module with Built-In Bass & Treble Boost Circuitry

ACS100.1
Amplified Speaker System



$99.99

- Volume Control to adjust Combined speaker output
- Bass Control adjusts low frequency output
- Treble Control adjusts high frequency output
- Headset Input Jack bypasses speakers for private audio monitoring
- 3 inch magnetically shielded Mid/Bass Driver
- 11mm Dome Tweeter with Ferrofluidic cooling

ACS300.1
Computer Speaker System with Subwoofer

$239.99

- Volume Control to adjust Combined speaker output
- A/B variable control for mixing the output of two sources
- Treble Control adjusts high frequency output
- Balance Control adjusts output level of each speaker
- Bass Volume for variable control of subwoofer output
- Headset input Jack bypasses speakers for private audio monitoring

AZTECH

Sound Galaxy NX pro extra
Stereo Sound Card

- Stereo FM Music Synthesizer
- 8-Bit Stereo Digitized Audio Playback
- Stereo Analog/Digital Recording
- Sound Source Dac
- Volume Control- 60dB in 16 steps
- CD Rom interface

$89.99

Includes Speakers!

Sound Galaxy BX II extra
Stereo Sound Card

- Software Compatability (Sound Blaster & *Adlib)
- 11 voice FM music Synthesizer
- Digital Audio Playback
- Analog/Digital Recording
- Dynamic Filtering
- Built in Midi interface
- Built-in Amplifier • Gameport
- Microphone Automatic Gain Control Amplifier

$59.9

Includes Speakers

Sound Galaxy basic 16
Stereo Sound Card

- Software Compatability
- Stereo FM Music Synthesizer
- 16-Bit Stereo Digitized Audio Playback
- Stereo Analog/Digital Mixer
- Mutiple AT-BUS CD-Rom Drive Interfaces
- Wave Table Sythesis
- Midi Interface
- Automatic Gain Control • Gameport
- On Board Connectors • Built-in 4 watt amp.

$109.9

Includes Headphone

Sound Galaxy double speed Pro
Multimedia Upgrade Kit

- High Performance Double speed, Kodak Photo CD Internal CD Rom Drive
- 16-Bit Stereo Sound Card
- Microphone and Amplifier Speakers
- Bundled w/5 Popular CD titles
  - Software Toolworks Encyclopedia
  - Battle Class
  - Jones in the Fast Lane
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$399.99

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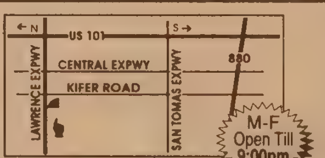

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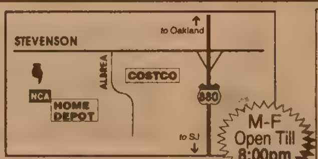

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CONTROLLERS

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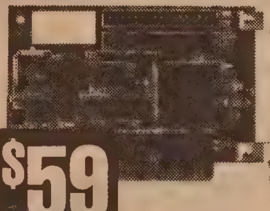
gsi™

Intelligent Accelerator/IDE Controllers

GSI Model 11

8-Bit Four-Floppy & 250MB Tape Accelerator Board



- High-speed floppy interface (up to four floppy drives)
- Doubles the speed of 250MB (QIC-80) tape drives
- Fully supports 2.88MB floppy disk drives
- Supports "Media-Sensing" compatibilites of 2.88MB floppies
- Works in primary or secondary mode
- Perfect floppy or tape upgrade board

$59

GSI Model 18 Co-Resident

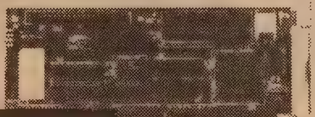
16- Primary or Secondary IDE Accelerator Board

- 16-Bit Accelerated IDE Channel (two IDE devices)
- Increases IDE Data transfer rates up to 80%!
- Compatible with Windows 3.x, OS/2 2.x & DOS
- Supports large IDE drives sizes above 528MB
- Tested and recommended by Micropolis, Fujitsu, Maxtor, Seagate, Western Digital, Quantum and Conner
- Compatible with even the oldest AT128C systems, Co-Reside with SCSI, ST412:MFM:RLL

$39

GSI Model 21

16-Bit IDE, Floppy & 250MB Tape Accelerator Board



- 16-Bit Accelerated IDE Channel (two IDE devices)
- Doubles the speed of 250MB tape drives
- Supports large IDE drives sizes above 528MB
- Increases IDE Data transfer rates up to 80%!
- Compatible with Windows 3.x, OS/2 2.x & DOS
- Novell NetWare Tested & Approved

$59

GSI Model 32

16-Bit Multi-Port IDE, Floppy, Tape, & I/O Accelerator Board

- 16-Bit Accelerated IDE Channel (two IDE devices)
- Increases IDE Data transfer rates up to 80%!
- Doubles the speed of 250MB tape drives
- Dual 16550 Serial ports
- Supports up to four Floppies including 2.88MB
- Compatible with Windows 3.x, OS/2 2.x & Novell
- Supports large IDE drives sizes above 528MB
- One Bi-directional Parallel Port

$119

GSI Model 4C NEW!

16-Bit Four-Channel, Eight-IDE Accelerator Board

- 16-Bit Multi-Channeling IDE Controller
- Perfect for Nevell mirroring or duplexing
- Four Accelerated IDE channels (Supports 8 IDE Drives)
- Increases IDE data transfer rates up to 80%
- Supports large IDE drives sizes above 528MB
- Compatible with IDE CD ROMs

$149

DATA TECHNOLOGY CORPORATION

DTC 3270VL

32-Bit VESA Local Bus *SCSI* Host Controller

- Supports 7 SCSI Devices (up to 8GB each)
- Supports 2 Floppy Disk Drives
- DOS CD-ROM Driver, Supports Double & Tripple Speed Drives
- DTC ASPI Drivers for: DOS, Novell Netware 386 & Windows NT & OS/2
- Internal SCSI cable
- Complete installation and user documentation
- Corel SCSI Certified

$125

DTC 3280AS ISA to SCSI 16-Bit Host Controller **$104**

DTC 3290AS EISA to SCSI 32-Bit Host Controller w/ Cache...**$499**

DTC 2278VL KIT

32-Bit VESA LOCAL BUS *IDE* Controller with Multi-Function I/O

- High Performance - Up to 8.3MB/sec "Featuring the DTC 805 Single Chip Controller"
- Supports 2 IDE Drives/2 Floppy Drives
- Multi I/O : 2 Serial, 1 Parallel, & 1 Game Port
- Drivers for MS-DOS, and Novell Netware 386
- (1) 34-Pin, (2) 40-Pin cables
- Complete installation and user documentation

$29

DTC 2277VL Kit VESA Local Bus Caching IDE Controller ...**$149**

DTC 2280

16-Bit PC/AT *IDE* Super I/O Controller

- Supports 2 IDE Devices
- Supports 2 Floppy Drives
- 2 RS232C Serial Ports
- 1 Parallel Printer Port
- 1 Game/Joystick Port

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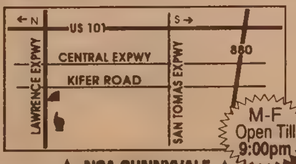

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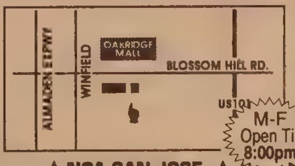

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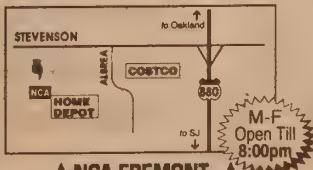

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SCSI CONTROLLERS

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SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
1510	CD ROM 16-BIT -SCSI CARD KIT	$89
1522	16-BIT 7HD/2FD KIT	$139
1542CF	BUS MASTER COMPLETE KIT	$238
1542C+	BUS MASTER KIT WITH COREL SCSI	$314
1640	MICROCHANNEL FOR PS/2, 7HD	$319
2742	**EISA KIT, 14HDS**	**$299**
2742W	Fast Wide SCSI EISA	$399
2842VL	**Fast SCSI-II VESA**	**$239**
APA-460	Slim SCSI PCMCIA SCSI Card	$289
AHA-2940	PCI SCSI MASTER RISC-BASED I/O	$329
AMM-1570	**FULL SCSI WITH ADVANCED AUDIO**	**$319**

DATA TECHNOLOGY CORPORATION

IDE CONTROLLERS

MODEL	DESCRIPTION	PRICE
DTC3270VL	32-Bit VESA 7SCSI/2FD SCSI	$125
DTC 3280AS	16-Bit ISA to SCSI Host Adapter	$104
DTC3280AS	EISA to SCSI 32-Bit Host w/Cache	$499

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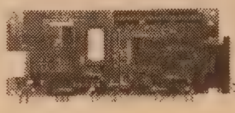

SCSI CONTROLLERS

DESCRIPTION	PRICE
FastDisk NC EISA non-cache SCSI cont.	$295
FastDisk EISA Caching Controller up to 16MB	$389
FastDisk VLB VESA Local Bus Caching Controller	$393
FastLAN SCSI	$439

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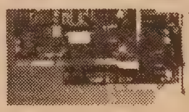

FULL KITS W/DRIVERS FOR CD-ROM/OPTICAL... ETC.

SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
T130	**8-BIT, 7HD w/ SCSI works**	**$44**
T228	MICROCHANNEL, 7HD	$139
T338	PARALLEL PORT to SCSI ADAPTER	$99
T348	PARALLEL PORT to SCSI PLUS	$149
T358	Parallel Port to SCSI Plus Enhanced	$189

TRANTOR SCSI Works **$59**
ASPI Device Drivers For:
CD-ROMs, Photo CD, Tape Drives, Syquest, Opticals, Scanners, Hard Drives
TAPEMATE II Back-up software & Music Box-Audio CD Software

aaa always technology

Easiest to use, PLUG & PLAY with CD Drivers

SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
IN2000	16 BIT 7HD/2FD "Easiest to use"	$175
IN2000PRO	With COREL SCSI	$215
AL1000	SCSI To PARALLEL	$159
AL1000PRO	Above With COREL SCSI	$185

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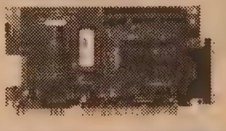

SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
TMC850	8-BIT W/BIOS	$59
TMC1670	SVP 16-BIT SCSI VALUE PACK	$149
TMC1680	SVP 16-BIT VALUE PACK 7HD/4FD	$139

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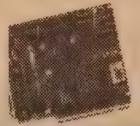
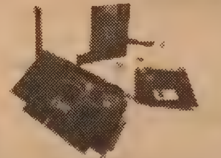


SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
20	PCI SCSI Host Adapter, Sup. Wide SCSI-3	$229

BUSLOGIC



SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
BT545S	ISA Bus Master Fast SCSI Adapter Kit	$208
BT445S	**Bus Master Fast SCSI Kit for VL Bus**	**$199**
BT742A	EISA Bus Master SCSI-II Adapter Kit	$329
BT747S	EISA Bus Master Fast SCSI	$364
BT946C	Bus Master Fast SCSI for PCI Local Bus	$249

Q logic™

Affordable High Performance SCSI Controllers

SCSI CONTROLLERS

MODEL	DESCRIPTION	PRICE
Fast! SCSI EISA	10MB per sec. fast SCSI-II	$199
Fast! SCSI ISA	16-bit PIO Data Transfer <3mb/sec	$124.99
Fast! SCSI VESA LOCAL BUS	32-bit VLB host data Transfer	$189
Fast! SCSI PCI	Bus Master support	$299
Fast! SCSI PCMCIA	Free CoralSCSI	$189

IDE CONTROLLERS

NCA'S STANDARD IDE

IDE CONTROLLERS

MODEL	DESCRIPTION	PRICE
200	2HD/2FD CONTROLLER W/CABLES	$14
211	2HD/2FD W/2 SERIAL, 1PAR, 1GAME	$23
NCL53	SMART CONT. W/BIOS EASY INSTALL	$49
223	**2HD/2FD for VESA LOCAL BUS I/O**	**$59**
15C	CACHING (UP TO 8MB), 2HD, 2FD **UltraStor**	**$159**

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IDE CONTROLLERS

MODEL	DESCRIPTION	PRICE
BT510A	IDE Cache Contoller For PC/AT Sys.	$95
BT410A	IDE Cache Controller for VLB	$129
BT910A	IDE PCI Cache Controller	$159

PROMISE TECHNOLOGY,INC.

IDE CACHING CONTROLLERS

IDE CONTROLLERS

MODEL	DESCRIPTION	PRICE
DC-200	ISA IDE 4HD/2FD, 2.88MB FLOPPY SUPPORT	$89
DC-420VLB	VESA IDE 512K CACHE	$108
DC-4030VL-2	VESA IDE 2.88MB SUPPORT 4HD/2FD	$119
DC-200M	ISA IDE 512K CACHE 4HD/2FD 2.88 SUPPORT	$129
DC2032	ISA Caching Controller	$139

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IDE CONTROLLERS

MODEL	DESCRIPTION	PRICE
DTC 2278AS	VESA Multi I/O 2s/1p/1g	$39
DTC2277VLL	VESA Caching IDE Controller	$149
DTC 2280	16-Bit Super I/O 2FD/2HD 2s/1p/1g	$19.99

WONDER 16550 IDE CARD

2 IDE DRIVES/2 FLOPPY
2 HIGH SPEED 16550 SERIAL PORTS
1 PARALLEL PORT / 1 GAME
$69

16650 I/O Controller......$45

PORT-FOLIO 16550

13-Port Super I/O Card
4 INTEGRATED NS16550 HIGH SPEED UARTs

QUICKPATH

- 2 IDE HD • 4 Floppy
- 2 Parallel • 4 Serial
- 1 Game

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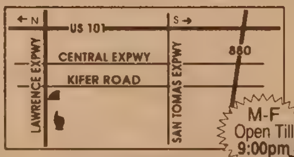

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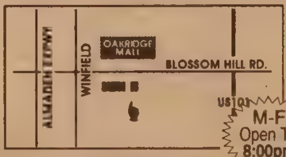

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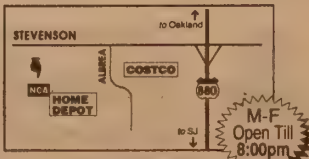

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VIDEO CARDS

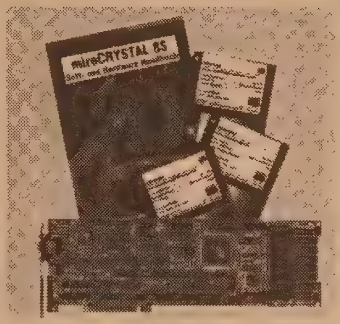
miro Graphics Power for Winners!

GERMAN ENGINEERED VIDEO ACCELERATOR CARDS.

miroCrystal 8s

$119

ISA Bus



- ▶ Graphics Chip S3 86C801 with 1MByte HighSpeed DRAM
- ▶ 256 Colors with 1024X768 Pixels
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- ▶ 80Hz at 1024X768 Pixels
- ▶ ISA

Turbo-Charged Graphics for Windows

miroCrystal 10s

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VLB

$129

PCI

- ▶ S3 86C805 Graphics Chip with 1MByte Highspeed DRAM
- ▶ 256 Colors with 1024X768
- ▶ Top Resolution of 1280X1024
- ▶ 80Hz at 1024X768 Pixels
- ▶ VL, PCI

miroCrystal 16s

$219

VLB

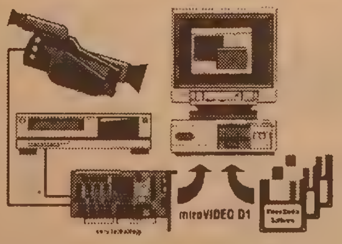
$229

PCI

- ▶ Graphics Chip S3 86C801 with 2MBytes DRAM
- ▶ 256 colors with 1408X1024 Pixels
- ▶ Top Resolution of 1408X1024
- ▶ 100Hz at 1024X768 Pixels
- ▶ ISA, EISA

Video D1

$239



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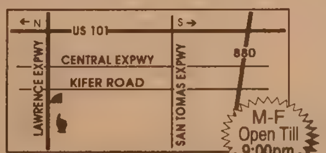

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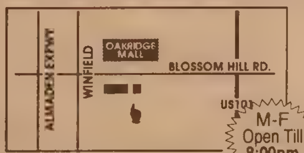

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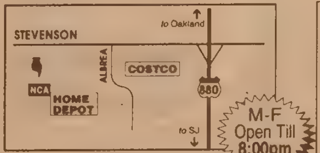

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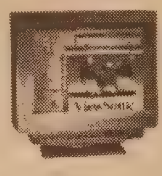

- 15" RGB Color Monitor
- 1280X1024
- Non-Interlaced

$389

ViewSonic -15 ..$469

ViewSonic-17

- 17" RGB Color Monitor
- 1280X1024 , .27dpi
- Non-Interlaced
- Flat Screen

$959

ViewSonic-20

- 20" RGB Color Monitor
- 1280X1024, .28dpi
- Non-Interlaced
- Dual Page Display

$1499

ViewSonic-21

- 21" Color Monitor
- 1600X1280
- .25dpi
- Non-Interlaced

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SuperScan™ 15s

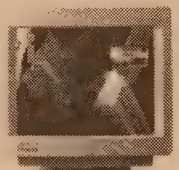
- 15" SVGA, Non-interlaced
- 1280X1024, .28dpi
- Flat Screen

$439

SuperScan™ Elite 17

- 17" SVGA Non Interlaced
- 1600X1200, .26dpi
- Flat Screen

$979



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- 20" SVGA Non-Interlaced
- 1280X1024, .31dpi
- Flat Screen

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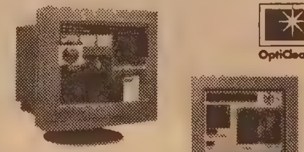
NEC



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3FGe 15" XGA-2 Compatible 1024X768 .... $565
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6FGp 21" 1280X1024, .28dpi, Opticlear $1999

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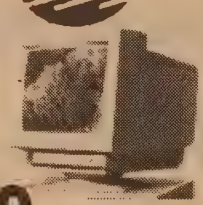
Affordable Quality Monitors



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- 1024X768
- Non-Interlaced
- .28dpi
- Standard Technology

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15" Performance

- 1280X1024,
- .28dpi
- Non-interlaced
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17" SVGA

- 1600X1280
- .26dpi
- Non-interlaced
- "The Green Monitor"
- **Low Radiation**
- L1564PD

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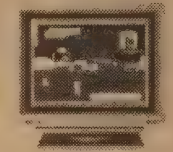

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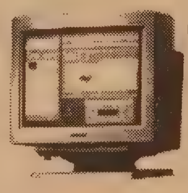

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- Max Res. 1600X1200 .25dpi
- Non-Interlaced

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- 20" Color Monitor
- State of the art
- 1280X1024 @ 72Hz
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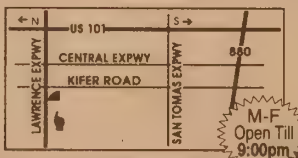

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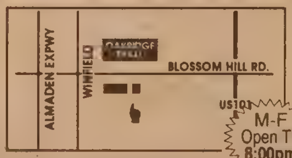

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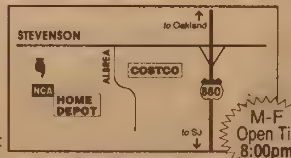

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HG610	Graphite VL Pro 1MB (exp. -2MB) VLB	$239
HG720	Graphite VL Pro 2MB VLB	$399
PG310	Graphite Power 1MB ISA	$249
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PG610	Graphite Power 1MB VLB	$249
PG720	Graphite Power 2MB VLB	$359

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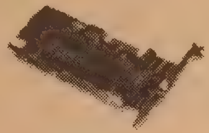
Computer Corporation
Excellence in PC Graphics



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15-Pin To 5BNC Monitor Cable	$89

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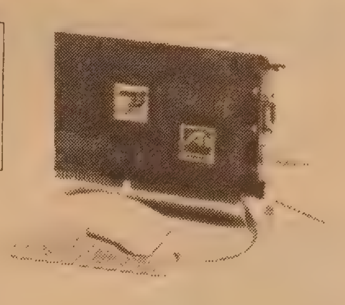

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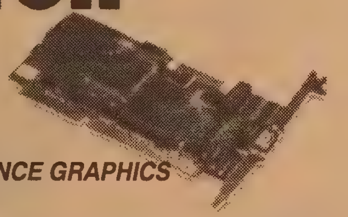

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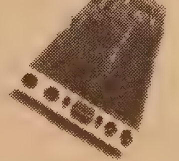

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True 1024X768 windows accelerator, 16.7 Million Colors, Multimedia Upgradeable, Fast film accelerated movie playback, MVV452, 72-Bit processor engine.

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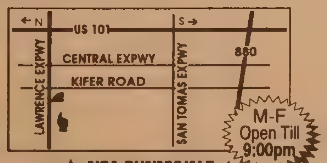

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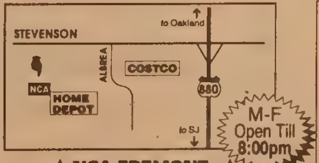

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up to 1600X1200 Resolution / up to 100Hz Refresh Rate
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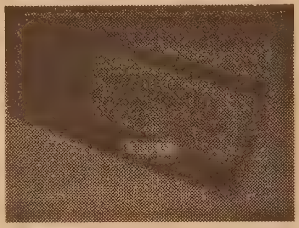

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$179	$229

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64-Bit Windows Graphics Accelerator

PCI or VLB

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Fast workstation Caliber Graphics on your PC
3MB VRAM
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- 7MB RAM
- Level 2 PostScript/PLC-5
- 35 resident Adobe scalable
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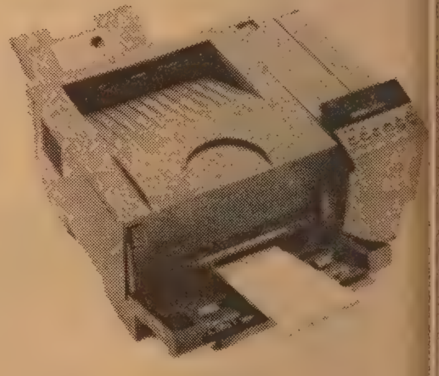

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- Fax Capability
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- 300dpi laser quality
- 2MB memory expandable to 5MB
- Envelope Feeder
- 35 resident Adobe Scalable Fonts
- Apple Talk built in

$949

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- 6ppm
- 300dpi laser quality
- Uses Memory from system CPU
- 14 Window True Type Fonts
- 20 NEC True Type Fonts

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- 3MB RAM
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- 17 resident Adobe scalable
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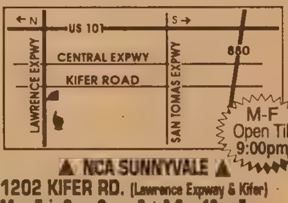

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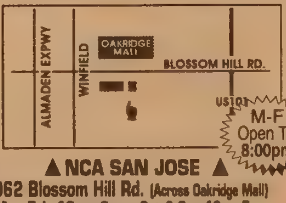

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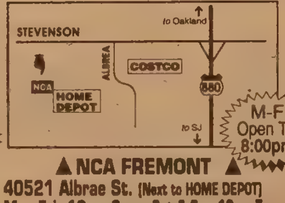

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SPiDER Windows Accelerators
16.7 Million Colors

SPiDER 32VLB

1MB DRAM/2MB DRAM	$95/$135

SPiDER 32VLB Plus

1MB DRAM/2MB DRAM	$109/$149

BLACK WiDOW VLB/ISA

1MB VRAM/2MB VRAM	$139/$199

16 Million Colors
Windows
Accelerator

BLACK WiDOW Plus

The Power of Graphics Co-Processor

NEW!

- IIT AGX-016: Co-Processor Accelerator
- Fast VRAM
- 135MHz High Color DAC up to 90Hz (NI)
- Ultra High Resolution 1600X1200
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1MB VRAM	2MB VRAM
$169	$239

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A Breakthrough in video Technology: Video Caching!

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- 128KB Video Cache (exp. 256KB)
- 32-Bit VESA VL-Bus
- Hardware Cursor & Line Drawing, BitBlt
- 1MB of Display memory (exp. 2MB)
- 16 Million Colors
- Up to 1280X1024 in 256 colors
- Refresh Rate up to 75Hz (NI)
- Virtrual Screen, Adjust Screen and Refresh Rate Check

1MB DRAM w/128C	2MB DRAM w/256C
$129	$189

SPiDER 64VLB/PCI

64-Bit Video Accelerator Card

NEW!

- 64-Bit video memory interface
- 64-Bit BitBlt
- 16 Million Color in 32-Bit/Pixel format
- 1024X768 in 16 Million Colors ; 1280X1024 in 64K Colors
- High Refresh Rate: up to 75Hz (NI)
- Display memory Expandable up to 4MB
- Virtual Screen, Adjust Screen and Refresh Rate Check
- Bus available: VESA VL-Bus and PCI

2MB DRAM	4MB DRAM
$199	$299

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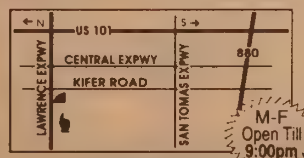
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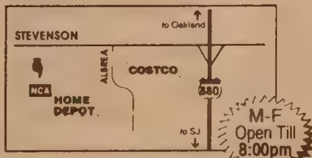
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REMOVABLES

MORE

OPTICALS

HEWLETT PACKARD

1.3GB Multifunction Rewritable & WORM Drive

- ▶ HP C1716T
- ▶ SCSI-2 1.3GB

INTERNAL **$2399**

EXTERNAL C2550 WITH CARTRIDGE **$2799**

1.3GB Cartridge........................$129

RICOH

128MBYTE, 3.5" SCSI-II REWRITABLE OPTICAL

INTERNAL **$719**

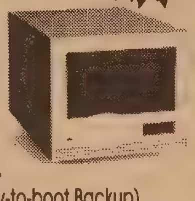
- ▶ 3000 RPM
- ▶ 256K Cache
- ▶ Approx. 40ms

EXTERNAL WITH CARTRIDGE **$889**

Multifunction Magento-Optical Disk Drive for 1-Gbyte and 650-Mbyte Rewritable and WORM Disk Cartridges, With up to 4-Mbytes Read/Write cache

Maxoptix™

1GB CART. glass/poly $195



Unlimited Data Storage
- ▶ External SCSI Subsystem
- ▶ One Year Factory Warranty
- ▶ 25-Year Life Of Glass Media
- ▶ Embedded SCSI/SCSI-2
- ▶ Data Transfer of up to 13.2Mbits/Sec.
- ▶ Ultimate Back-up For NOVELL (Ready-to-boot Backup)

TAHITI IIM - Multifunction
- ▶ 1MB Read/WriteCache
- ▶ External SCSI
- ▶ 35ms

$2199

TAHITI IIM - Multifunction
- ▶ 4MB Read/Write Cache
- ▶ External SCSI
- ▶ 35ms

$2399

TAHITI IIIM - Multifunction
- ▶ 1MB Read/Wirte Cache
- ▶ 1.3GB Optical

$2099

External Optical/1MB Cache....$2399

TAHITI IIIM - Multifunction
- ▶ 4MB Read/Wirte Cache
- ▶ 1.3GB Optical

$2299

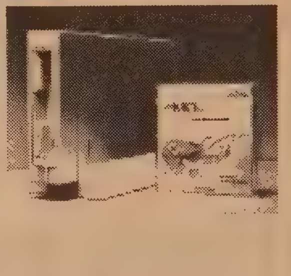
External Optical/4MB Cache....$2599

FUJITSU DynaMO™ 128

5-Year Warranty

128MB REWRITABLE, REMOVABLE OPTICAL SCSI DRIVES

EXTERNAL SCSI 128MB, 3.5" REWRITABLE OPTICAL



- ▶ External Optical Drive
- ▶ Using 2511A Internal
- ▶ Includes 1 Cartridge
- ▶ Fast 30ms Seek Time
- ▶ 3600RPM
- ▶ 256K Cache
- ▶ Software for MAC (free upon request)

$839

PC VERSION W/ CONTROLLER......$959

INTERNAL 128MB, 3.5" REWRITABLE OPTICAL

- ▶ Bare Optical Drive
- ▶ 2511A
- ▶ Low Profile, Only 1"
- ▶ 3600RPM
- ▶ 256K Cache
- ▶ Fast 30ms Seek Time

$739

DYNAMO 128MB 3.5" CARTRIDGE $39

REMOVABLES

SyQuest

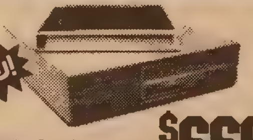
270MB SYQUEST REMOVABLE

External SCSI Drive
- External 270MB 3.5" SCSI Removable Cartridge Drive
- Unlimited Storage Capacity
- 270MB External Drive
- Cables & Software for MAC
- 13.5ms Seek Time
- Includes one cartridge

$589

Internal Bare Drive $399

200MB SYQUEST REMOVABLE



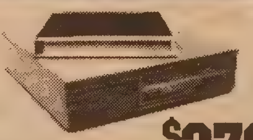
NEW!

External 200MB Drive
- 200MB Cartridge
- Cables
- Installation Software (for MAC)
- PC Software Included With Controller Purchase

$669

Internal Bare Drive $469

44MB SYQUEST REMOVABLE



External 44MB Drive
- 44MB Cartridge
- Cables
- Installation Software (for MAC)
- PC Software Included With Controller Purchase

$379

Internal Bare Drive $229

88MB C SYQUEST REMOVABLE

External 88MB C Drive
- 88MB Cartridge
- Cables
- Reads & Write Both 44 & 88 MB
- Installation Software (for MAC)
- PC Software Included With Controller Purchase

$459

Internal Bare Drive $279

105MB 3.5" SYQUEST REMOVABLE

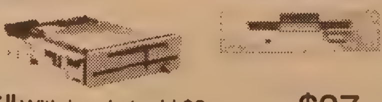
External SCSI 105MB Drive
- 14ms Seek Time
- 105MB Cartridge
- Cables
- Installation Software (for MAC)
- PC Software Included With Controller Purchase

$429

Internal SCSI Bare Drive $279
Internal IDE Bare Drive $239

CAPACITY	SINGLE	5-PACK
44MB Cartridge (5.25")	$59	$295
88MB Cartridge (5.25")	$95	$459
105MB Cartridge (3.5")	$59	$295
200MB Cartridge (5.25")	$99	$475
270MB Cartridge (3.5")	$89	$445

TEAC



1.44MB 3.5" With bracket add $6.........$37
1.2MB 5.25" $47
1.2/1.44MB Dual Drive..........$99

FLOPTICALS

IOMEGA®

21MB Floptical Drive

floptical®

MAC Version

INCLUDES:
- External 3.5" 21MB Floptical
- One Floptical Media
- Cables , Software for MAC

$399

21MB MEDIA BY IOMEGA LASER ETCHED
SINGLE ......$19.99 **5-PACK......$89.99**

PC Version

INCLUDES:

IOMEGA 21MB 3.5" Floptical
One Floptical Media
Host adapter SCSI 8-bit
Cables , Software for PC

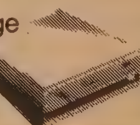
INTERNAL **$369**

EXTERNAL **$429**

21MB MEDIA BY IOMEGA LASER ETCHED
SINGLE ......$19.99 **5-PACK......$89.99**

BERNOULLI

150MB EXTERNAL PC TRANSPORTABLE
- Cables
- One 150MB Cartridge



$539

90MB BERNOULLI REMOVABLE
PC VERSION $339
MAC Transportable $339

BERNOULLI CARTRIDGES	SINGLE	3-PACK
65MB	$59	$169
90MB	$109	$309
105MB	$99	$269
150MB	$109	$309

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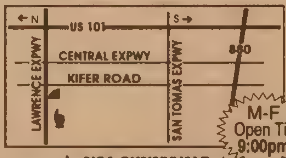

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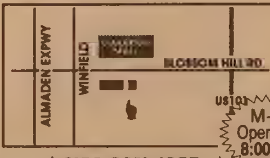

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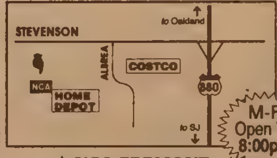

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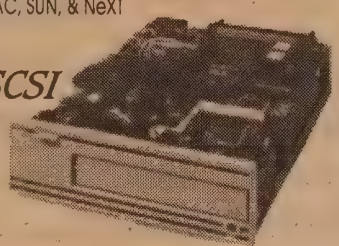
TAPE BACK-UP

MORE

CONNER

SOF•STOR

for IBM Compatibles, MAC, SUN, & NeXT



SCSI

Formerly ARCHIVE

ANACONDA

- ◆ 36MB/MIN
- ◆ SCSI-2
- ◆ 1/4" TAPE UNIT

1.3GB 2750
INTERNAL $799
EXTERNAL $899

2.0GB 2800
INTERNAL $999
EXTERNAL ..$1099

The BEST name in SCSI Back-up Drives

VIPER™

SCSI 1/4" Tape Backups

2150S

- ◆ 250MB VIPER
- ◆ 6MB/MIN.

INT.	EXT.
$319	$429

Int. W/Software $399

2525S

- ◆ 525MB VIPER
- ◆ 6MB/MIN.

INT.	EXT.
$449	$569

Int. W/Software $549

PYTHON™

SCSI 4mm DAT Tape Backups

4324 Turbo

- ◆ 4GB DAT 4mm
- ◆ 1MB Cache Buffer

INT.	EXT.
$1029	$1149

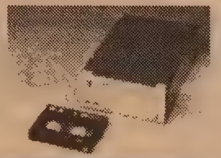
4320NT

- ◆ 2.0GB DAT 4mm
- ◆ 11MB/MIN.

INT.	EXT.
$879	$989

HEWLETT PACKARD

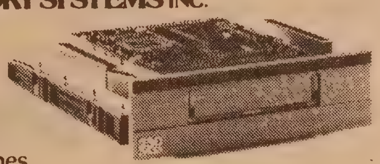
The most reliable SCSI Tape Backups for MAC, PC or SUN



SCSI 4mm DAT

CAPACITY	MODEL	INTERNAL	EXTERNAL
2.0GB	35470 DAT	$889	$999
4-8GB	35480 DAT	$999	$1189
4-16GB	C1533A	$1249	$1359

COLORADO MEMORY SYSTEMS INC.



Uses 2120 Tapes

RUNS OFF FLOPPY PORT

CAPACITY	MODEL/TYPE	INTERNAL
120MB	DJ10 JUMBO120	$99
250MB	DJ20 JUMBO250	$169

EXTERNAL KIT WITH CARD AND CABLES KE-10	$109
EXTERNAL TAPE PORT AB-11	$35
FC-10 TAPE CONTROLLER, WITH CABLES	$78
TC-15 HIGH PERFORMANCE 16-BIT CONTROLLER	$168

CONNER

TAPE•STOR 250MB

TAPE BACKUP
INCLUDES 1 CARTRIDGE

INTERNAL	EXTERNAL
RUNS OFF FLOPPY PORT	RUNS OFF PARALLEL PORT
$149	$299

EXABYTE®

FS1G

1.5GB SCSI Tape Storage

COMPLETE SYSTEM INLUDUES:
- •Internal FS1G Tape Drive
- •Adaptec 16-Bit SCSI Controller Card
- •File Secure Software
- •Up to 30MB/Min. Transfer
- •One Data Cartridge

$869

External. FS1G Kit...$969
Internal Unit (2501) $519

4mm DAT Cartridge Subsystems

CAPACITY	MODEL	INTERNAL	EXTERNAL
2.0GB	EXB-4200	$849	$959
4GB	EXB-4200C	$949	$1039

2.5GB 8mm DAT Subsystems

CAPACITY	MODEL	INTERNAL	EXTERNAL
2.5GB	EXB-8205	$1399	$1649

5GB 8mm DAT Subsystems

CAPACITY	MODEL	INTERNAL	EXTERNAL
5.0GB	EXB-8505	$2069	$2499
5.0GB	EXB-8500	$2299	$2599

WangDAT™

4-8GB
3400DX DAT Tape Backup

Internal $1099
External $1199

SCSI 4mm DAT

CAPACITY	MODEL	INTERNAL	EXTERNAL
2.0GB	3100 DAT	$899	$999
4-8GB	3200 DAT	$999	$1099

WANGTEK

CAPACITY	MODEL	INTERNAL	EXTERNAL
250MB	5150S SCSI	$399	$499
525MB	5525S SCSI	$539	$649

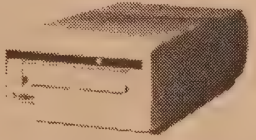
backpack
Tape Drive

Parallel port 250MB External Tape Backup

- ▶ QIC 80 uses 2120 tapes
- ▶ Software for unattended backups
- ▶ Twice as fast as internal floppy drive
- ▶ Window and DOS Software Included
- ▶ 2 Year Warranty

SEE AD

Trakker™



PARALLEL PRINTER PORT EXTERNAL TAPE BACK-UP SYSTEMS

RUNS OFF PARALLEL PRINTER PORT

CAPACITY	MODEL/TYPE	EXTERNAL
120MB	TRAKKER 120	$283
250MB	**TRAKKER 250**	**$323**

SUMMIT™
MEMORY SYSTEMS INC

WITH CENTRAL POINT BACKUP SOFTWARE

RUNS OFF FLOPPY PORT

CAPACITY	MODEL/TYPE	INTERNAL
120MB	SE-120	$129
250MB	SE-250	$159

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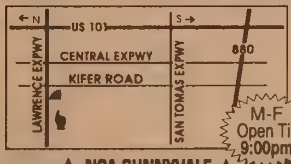

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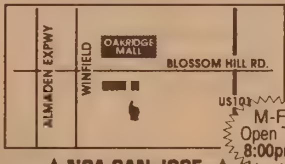

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ALBREA
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NETWORK

FAX/MODEMS

intel

•Ethernet Express Products	Single	5-Pack	20-Pack
16-bit, 10 Base T and Coax Combo	$114	484	1969
16-bit, Coax Cards or 10 Base T Cards	$109	494	1799

•Ethernet Flash Cards	Single	5-Pack	20-Pack
16-bit, 10 Base T and Coax Combo	$134	624	2399
16-bit, 10 Base T or Coax Cards	$119	539	1899

•Print Servers/NetPort Line	
NetPort for 10 Base T or Coax	$398

SMC

•Elite Ultra Line/Ethernet	Single	6-Pack	24-Pack
16-bit, Coax or Board Twisted Pair	$109	589	2199
16-bit, Combo Board	$119	659	2549
•3812 Line of Stackable Hubs			
12 Port Hub	$599		
Network Managment Module	$415		
•Twisted Pair Hubs			
Elite 10 Base T w/12 RJ-45	$599		
Elite 10 Base T w/12 RJ-45 with SNMP	$899		
Elite 10 Base T w/8 RJ-45	$339		

3Com

3COM	
EtherLink II - 16-bit 10 Base T / Coax3C503	$167/167
EtherLink III - 3C509 10 Base T or Coax	$125
EtherLink III - 3C509 Combo Card 16-bit	$143
EtherLink III - 32-bit EISA 10 Base T or Coax	$229

NOVELL.

NOVELL	single	5-Pack
NE2000 plus 16-bit Coax	$109	499
NE2000 plus 16-bit Twisted Pair	$103	473
NE2000 plus Combo	$133	549
NE3210 32-bit EISA Combo	$213	

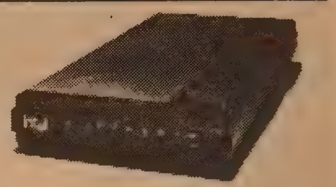
NOVELL SOFTWARE

Ver.	5 user	10 user	25 user	50 user	100 user	250 user
3.12	$613	$1393	$2083	$2694	$3994	$6994
4.01	$819	$1793	$2599	$3594	$5395	$9694

SPECIAL OFFER

16-bit Card with Novell Lite 1.1	$99
Leadman 10 Base T or Coax 8-bit/16-bit	$59

intel



FAX/MODEM Group III FAX
V.32bis 14,400 bps data Includes WinFax Software. 5-Yr. Warranty

14.4 Internal Fax/Modem...$109
14.4 External Fax/Modem.......$139
28.8 Internal Fax/Modem..............$Call
28.8 External Fax/Modem.............$Call

SatisFAXtion 400™ 14.4 Fax/Modem • MNP5/V.42/V.32
Internal...$266 **External 400e.$299**

PCMCIA 14.4 Fax/Modem........$259

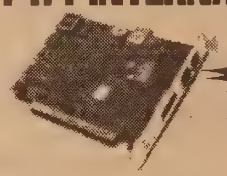
USRobotics®

The Intelligent Choice in Data Communications
HIGH SPEED FAX/MODEMS

SPORTSTER 14,400 V.32/V.42

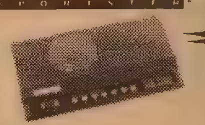
WITH QUICKLINK LITE SOFTWARE

14.4 INTERNAL for PC



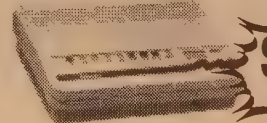
$109

mac&fax PORTSTER



$149

14.4 EXTERNAL for PC



$129

14.4 PCMCIA Fax/Modem

$269

Hayes®

NEW!

The Fastest Hayes™ Modem For Business Communications

- ▶ 28,800bit/s Data & 14,400bit/s Group 3
- ▶ Includes 14,400bit/s (V.32bis) & 9600 bit/s (V.32)
- ▶ Error control V.42 & data compression V.42bis
- ▶ Includes FREE Smartcom for Windows LE & Fax software

$389

WHAT EVERY EXTERNAL 14.4 MODEM NEEDS

WONDER 16550 IDE CARD **$69**
2 IDE DRIVES/2 FLOPPY
2 HIGH SPEED 16550 SERIAL PORTS
1 PARALLEL PORT / 1 GAME

QUICKPATH

PORT-FOLIO16 550 **$129**
2 IDE HD, 2 Parallel, 4 Serial, 4 Floppy, 1 Game
13-Port Super I/O Card,
4 INTEGRATED NS16550 HIGH SPEED UARTs

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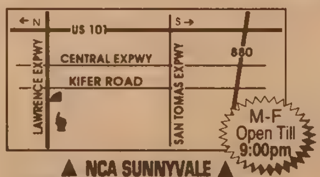

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57,600 bps throughput/ Class 1 Fax, Caller ID

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Software Included:
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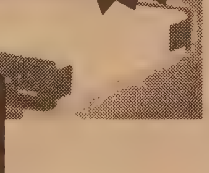

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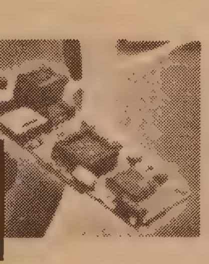

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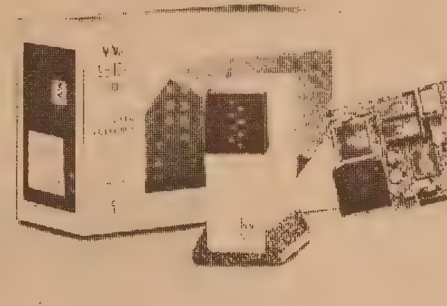

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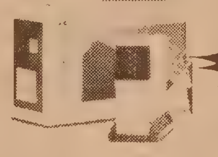
V.32bis (54With *FAXsft*
V.32bis (57,600 bps
Maximum throughput speed



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14.4 bps pocket size modem with 14,400 bps SEND/REC. Fax
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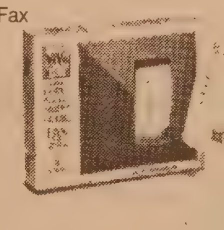

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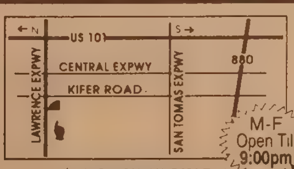

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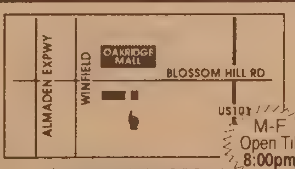

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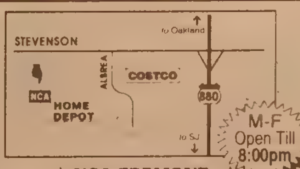

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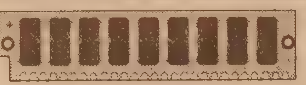

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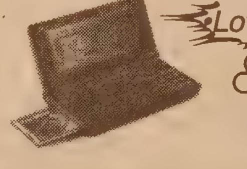

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Hi-Quality 32Bit PCI local bus interface Cards.

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PCI VIDEO CARDS.......
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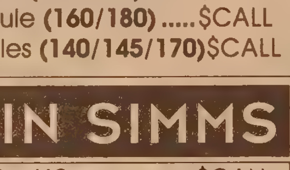

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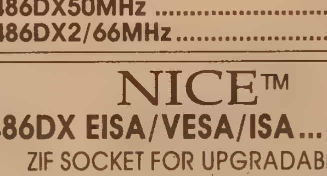

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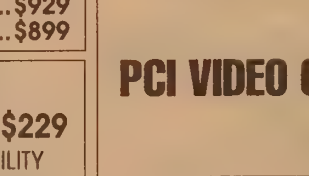

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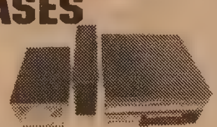

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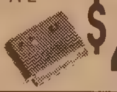

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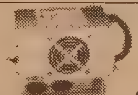

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ScanMan 256 for Windows	$199
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NAME	PRICE
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NAME	PRICE
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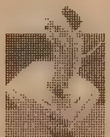

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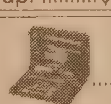

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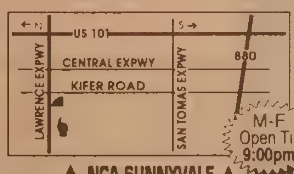

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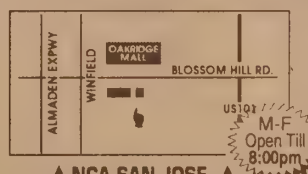

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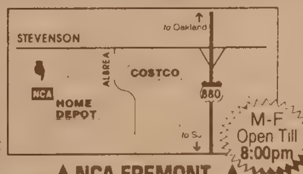

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Continued from page 206

Reviews

Game Reviews

Ultimate Domain

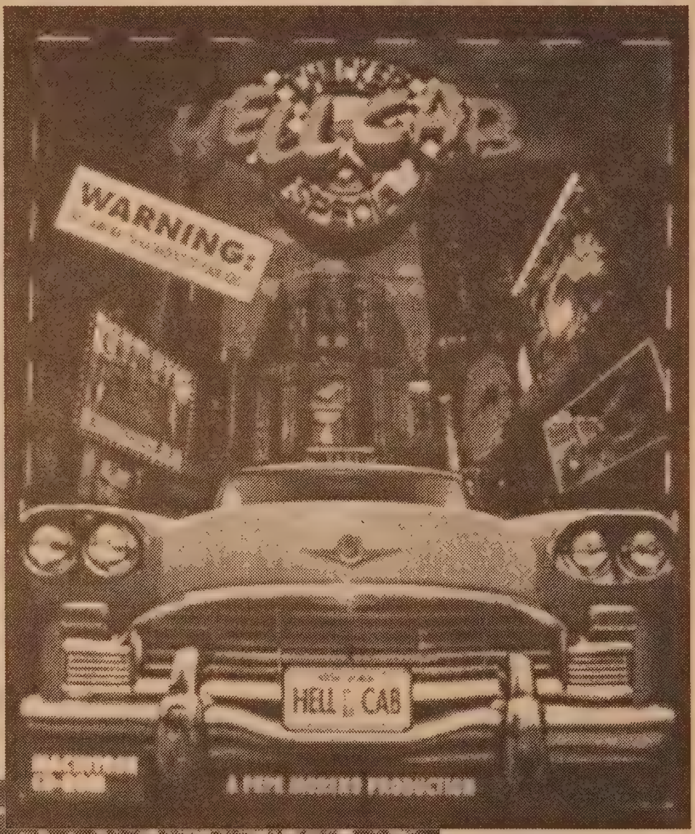
List Price: $39.99
Designed By: Thomas Zighem
Produced By: Microids
Published By: The Software Toolworks, Inc.
For: IBM 386, 2MB RAM, MS-DOS 5.0, VGA, Microsoft Mouse required, Sound Blaster
Reviewed By: Fred Haslam

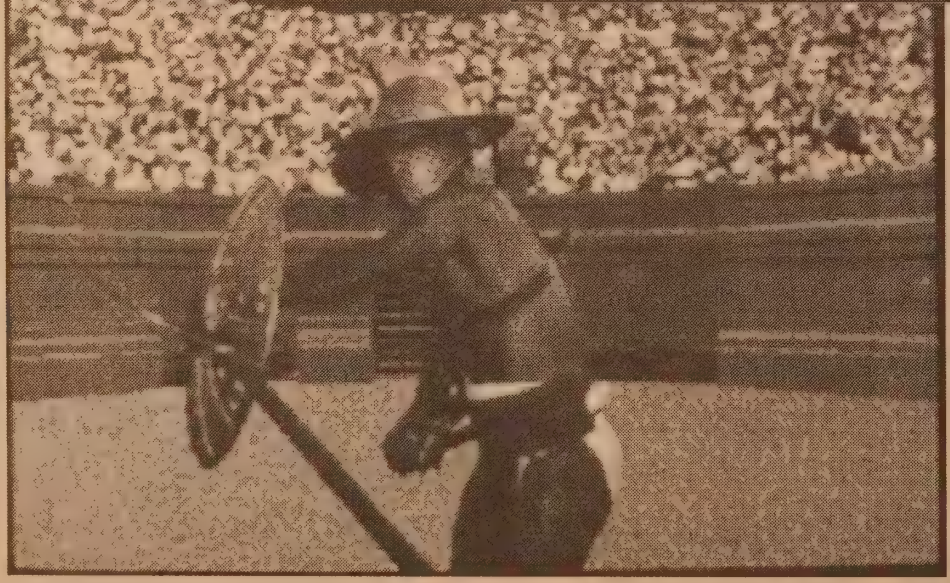
This is a slightly different strategy game. In some ways it is similar to Civilization: you have communities which perform research and produce military units. But this game takes place on a different scale. The player spends a lot of time reassigning jobs to the various members of each community. Depending on the type of game you like, this could be either tedious or fascinating.

The primary game asks the player to build military units to search for seven crystals in this medieval world. The first nation to get them all wins. But the meat of the game comes in balancing resources. Should you build another mine before building a church or a garrison? Should you assign more people to harvesting wood or to making houses to attract citizens? Can you afford to use citizens as soldiers, or do you need more growth or research first?

The interface is similar to Populace with the exception that the game is turn-based rather than continuous. You might figure out many of the options available, but you will never do well at this game until you read the rules closely. The graphics are decent, with minor animation. The sound and music are nothing special.

As I said above, Ultimate Domain is a different sort of strategy game. One difference is that the production centers are much larger than the military units. For the era represented by Domain, this is realistic. This paucity of military units generates medieval style strategy. (The Software Toolworks, Inc., 60 Leveroni Court, Novato CA 94949. 415/883-5157)





Top and left: Hellcab

Hellcab

List Price: $49.99
Designed By: Pepe Moreno
Published By: Time Warner Interactive Group
For: IBM 386, 3MB RAM, Windows 3.1, mouse required, MPC CD-ROM@150k/s, SVGA, MPC sound card
Reviewed By: Fred Haslam

Hellcab is an imaginative premise that has been poorly implemented. The graphics are good, but the interface is slow and unresponsive. The puzzles are mundane or reflexive—and there are simply too few of them. For a CD game I expect more bang for my buck.

This adventure roams through four areas—the Empire State building, a Roman arena, some WWI trenches, and a stretch of Jurassic jungle. Each area contains about ten screens—all with limited actions and interactions. The game has a few puzzles that may keep you intrigued for up to an hour.

The graphics are very nice—high quality, 16 colors. The animation is poor. The interface is mostly intuitive, but slow to react. The sound is digitized CD quality, but is sparse.

As an adventure game Hellcab is small and annoying. It can be better described as a 'tour'—i.e., come look at our cool pictures. This type of game worked fine for Myst and The Seventh Guest, but the graphics for Hellcab just aren't up to that quality. (Time Warner Interactive Group, 2210 Olive Ave., Burbank CA 91506. 818/955-9999)

Book Reviews

SSC Pocket References

Published By: SSC Pocket Reference Books
Reviewed By: Kevin Savetz

This happens to me all the time: I'm in the middle of writing a C program, or tweaking an AUTOEXEC.BAT file, or editing a file with the "vi," or otherwise steeped in thought in front of the computer—then I hit "The Wall." This is a sort of inexplicable mental block: what's the format for outputting a number in hex? What's the syntax for the DOSSHELL command? How do I

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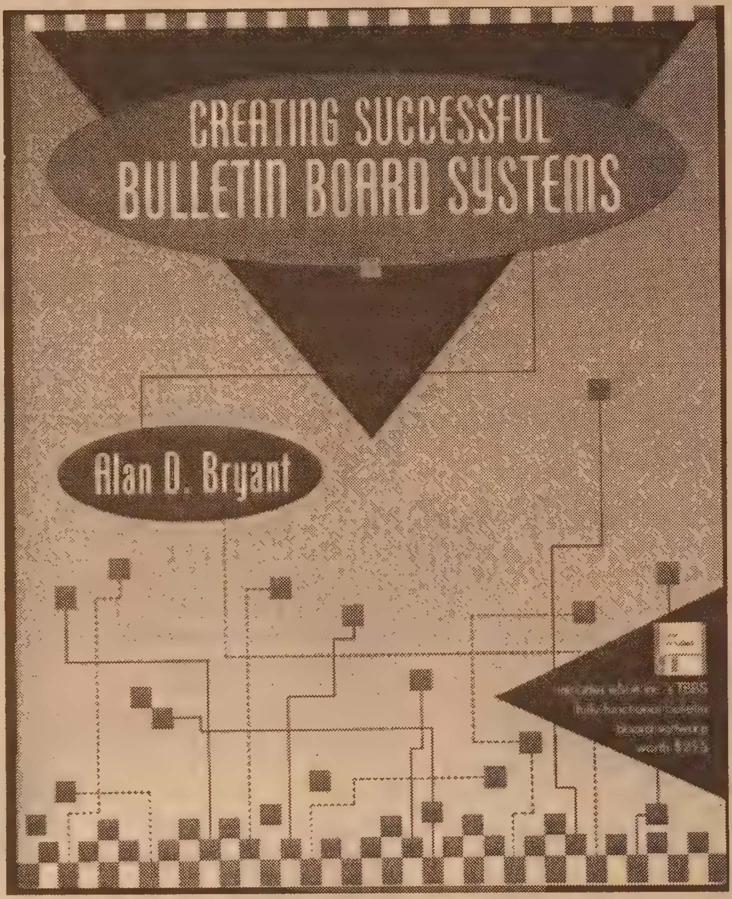

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For programmers, there are guides for ANSI C, C++ and Fortran 77. (Another good resource for programmers is the 29-page *Software Copyright Book*, which shows how to copyright source code and visual displays.) UNIX users can find guides on System V, the vi editor, GNU emacs, the Korn shell, and Linux. Other users will appreciate the RS-232 card (with information about serial communications) and the MS-DOS command summary.

Prices vary depending on the size of the guide—the majority range from $3 to $10. These guides are small and complete, but will not replace the full manuals. (After all, they're not meant to.) They will, however, reduce the number of times you'll need to brave that leaning tower of tomes. (SSC, Inc., PO Box 55549, Seattle, WA 98155. 206/527-3385. Email: sales@ssc.com)

Creating Successful Bulletin Board Systems

Author: Alan D. Bryant
Published By: Addison-Wesley
List Price: $39.95
Reviewed By: Bill Gram-Reefer

According to the author of *Creating Successful Bulletin Board Systems*, Alan D. Bryant, there are an estimated 150,000 BBS operators representing a growth industry that expands 10 to 20% annually. But like restaurants that come and go each day, the spiraling BBS growth curve, pushed by entrepreneurs and hobbyists alike, comes complete with its own litany of false starts, zonko business plans, technical and legal problems, and poor capitalization. Noting these potential pitfalls, Bryant, director of marketing for eSoft Inc., has cobbled together a usable primer for the wanna-be system operator (sysop), that is worthy reading, too, for the experienced BBS operator.

Whether you're seeking fun or profit or both in your BBS, the chapters are designed to take the reader from the design, theme, and setup stage of creating a BBS, through to the finer points of technical requirements, expansion, billing methods, and day-to-day operation. Something of a *What Color is Your Parachute?* how-to book, the many comparative tables throughout help the reader balance various options the author describes. The worksheets at the end of each chapter further help the reader analyze and organize. Insider tips speckled about provide sage warnings and technical explanations. A well-stocked appendix, glossary, and index round out this primer.

It comes complete with a clipped, two-line version of eSoft's popular TBBS software for IBM-PC and compatibles on a disk pasted on the inside-back cover. The program is upgradable to the full retail version for just $75. Not surprisingly, the DOS/TBBS background of the author limits the book's usefulness in areas of support for Macintosh-based systems that could be better served by scouring Bernard Aboba's *The Online User's Encyclopedia*, also published by Addison Wesley. But beyond these technical concerns, *Creating Successful Bulletin Board Systems* is loaded with enough platform-independent advice that it can be recommended to any reader.

Macintosh Software Review

RAM Doubler v1.0.1

Published By: Connectix
List Price: $99
Reviewed By: Matthew Leeds

RAM Doubler is a simple product (it doubles the amount of available RAM on your Mac), with a simple interface (none), and a simple installer (double-click, point it at your startup drive, personalize it, and you're done) that all mask a complex process. It uses a combi-

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nation of memory allocation tricks, compression, and virtual memory to play a game of memory musical chairs with your applications.

To use RAM Doubler you need a Mac with a 68030, 68040, a Mac II with a PMMU (paged memory management unit), or a 68020-based Mac with a 68030 or 68040-based accelerator installed. You also need to be running System 6.0.5 or better and have at least 4MB of RAM installed. To fully double your RAM you most likely will need to be running with 32-bit addressing turned on.

There are a few caveats to keep in mind regarding this 'free' RAM. The first is that no application should be given a memory partition larger than that which was available before RAM Doubler was used. The second is that you're likely to see a performance hit. In my testing, I found a slightly longer delay in switching between applications and in saving files. The delay is not a big deal, unless you push right to the limits of memory. When RAM Doubler runs out of ways to shuffle applications and data around in memory it swaps them out to your hard drive just as virtual memory would.

The third is that a few applications won't work with RAM Doubler installed. Debuggers in general won't work, and some third party accelerators are also incompatible. However, just about everything else is (you'll want to make sure you're running the most current versions of applications and inits). Finally, you can't have more than 256MB of RAM total.

Using RAM Doubler is great. It is much more affordable than adding physical RAM to your Mac. No longer needing to quit one application to start another can result in a big productivity gain that more than offsets the slight slowdown in switching between applications. I highly recommend RAM Doubler. (Connectix, Inc., 2600 Campus Dr., San Mateo, CA 94403) ■

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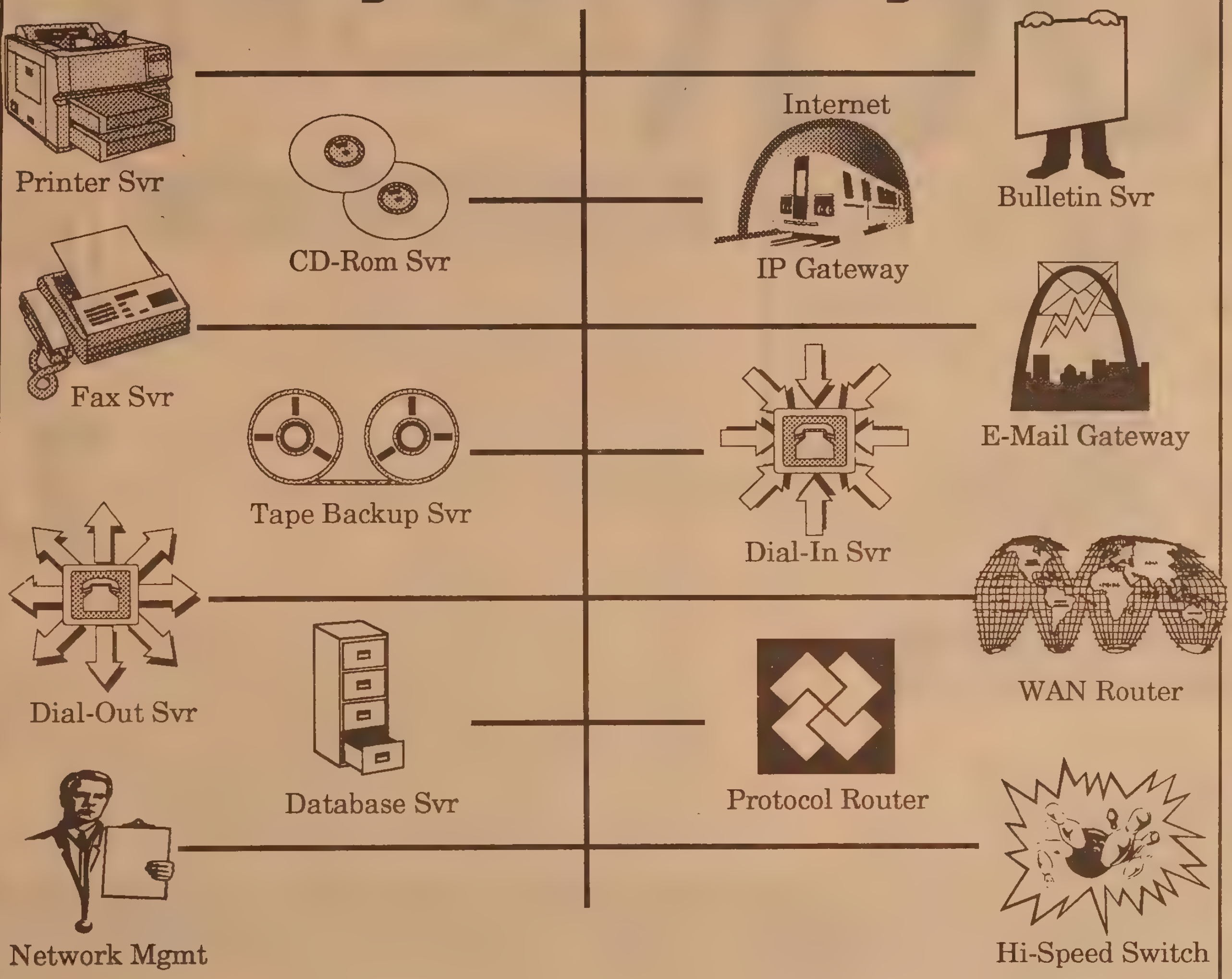

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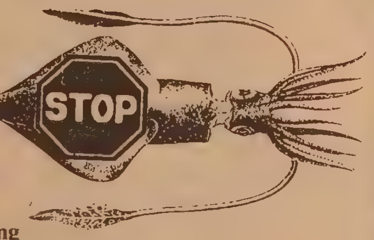

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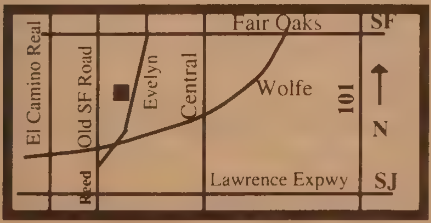

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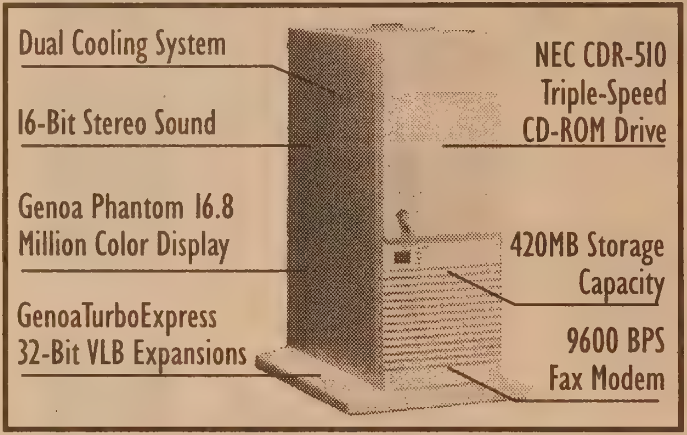
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OS/2 *continued from page 92...*

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tition, though not how to restore it (note the advantage of a separate drive/partition for OS/2 itself, which I mentioned in an earlier column on OS/2 installation). Fastback can also generate a Recovery Set of three diskettes which can be used to boot and restore from backup in case the system becomes unusable.

In the absence of full-fledged backup software, you should at least back up your customized desktop and .INI files. If you don't have them by now, you should get two shareware utilities that I already mentioned in a previous column, WPSBkup and SysMaint (both are available on CompuServe). The latter has additional useful applications beyond backup.

You should also read the README.INS file which contains preparation and installation information, including some references to specific hardware that might be relevant in your circumstances.

But before you can proceed for the installation, there is one more hurdle, usual OS/2: display drivers. There are three SVGA display driver disks in the SP, but there is also an add-on disk labeled "Update for High-Resolution/Color Display Drivers NOT packaged with OS/2 2.1." The printed out README.1ST file (yet another one) accompanying the disk states:

"In certain instances, applying the OS/2 2.1 ServicePak (XR06200) results in overwriting users' current levels of high resolution or color support (greater than VGA). The condition occurs if you have installed graphics display drivers obtained from sources other than the OS/2 2.1 product package. The [SP] replaces display driver files such as BVHVGA.DLL, BVHSVGA.DLL, VGA.SYS and VSVGA.SYS. This might leave your high-resolution color driver partially installed."

In other words, if you separately installed a high resolution driver offered by the vendor after OS/2 2.1, the SP will overwrite some of the driver files and may cause problems.

The file lists (by display adapter and graphics chipset) twelve such drivers that are compressed on the add-on disk. If your specific adapter is not on the disk, the file refers you to several sources where drivers may be available. It then provides instructions on how to use either the add-on disk, or drivers obtained elsewhere to resolve the overwrite problem.

For example, I have an ATI Ultra Graphics Pro (EISA) based on the Mach32 chipset, and had already installed an upgraded driver for it prior to the CSD. Therefore, the above warning was relevant: applying the straight CSD would, in fact, result in screen corruption of DOS and Windows sessions. While the CSD add-on disk does contain the pertinent driver, I found instructions on the ATI forum on CompuServe for how to use the already installed driver to produce my own disk that could be used during CSD installation to correct the corruption problem, without having to resort to the add-on disk.

Installation

By comparison, the installation itself is straightforward—if tedious—assuming, of course, that you are fortunate enough not to experience problems.

Following the printed instructions accompanying the CSD, you open an OS/2 command prompt session, insert the Installation diskette in drive A:, and type

```
A:\SERVICE
```

You will then have to respond to some prompts and feed diskettes. At some point the installation program will prompt you for the display driver disk. Depending on your circumstances, you would use either one of the three CSD driver disks, the special disk you produced from the add-on disk or, as in my case, the disk produced from the driver obtained elsewhere.

If the installation is successful it will culminate with a reboot. Under normal circumstances you're done, but with a special display driver you go through one additional step: following the instructions for your specific driver, you'll have to copy some files onto the ones installed by the CSD. In my case, those are VVGA.SYS and V8514A.SYS.

Since the installation I experienced a couple of crashes I didn't experience before, but it's hard to tell the exact reason, and whether the SP had anything to do with them.

Good luck. ■

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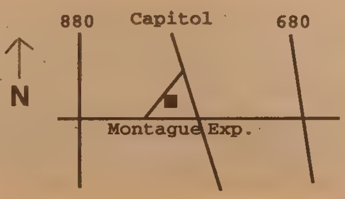

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Protocal Analyzers

continued from page 94

ters defined at a time, and each filter can isolate only a source or destination address, not both. In addition, it has problems with some Ethernet cards based on the Sonic chipset.

EtherPeek offers a much more robust filtering capability. Not only can you enable an unlimited number of filters, one filter can handle both source and/or destination addresses. Creating filters is also much easier than with NetMinder. You can select a packet and automatically make a filter with the same attributes as the packet. It also offers a feature that tracks a "conversation," making it easier to trace an event without building a filter.

> A GOOD PROTOCOL ANALYZER COMES WITH MANY PRECONFIGURED FILTERS AND LETS YOU BUILD YOUR OWN AS WELL.

EtherPeek provides broader support for Ethernet interfaces, including some SCSI-Ethernet adapters. It is better able to keep up with traffic on heavily utilized networks. A utility for collecting network names matched to Ethernet addresses is included, but a utility for packet capture only is not. You can request one from the AG Group.

Overall I found EtherPeek easier to use and more robust in its analysis tools. I would like to see incorporated some kind of online help similar to the Explain function in NetMinder. Given the price difference between the products, you'll have to choose which is best for your needs. ■

Product	NetMinder	EtherPeek
Company	Neon Software	AG Group
Address	3685 Mt. Diablo Blvd. #203 Lafayette, CA 94549	2540 Camino Diablo, #200, Walnut Creek, CA 94596
Phone	(510)283-9771	1-800-466-2447
List Price	$595	$795
Protocols	AppleTalk, TCP/IP, NetWare, DECnet, LAT, XNS, Vines, SNMP	AppleTalk, TCP/IP, NetWare, DECnet, LAT, MOP, XNS, Vines, SNMP, Caymen Tunnels

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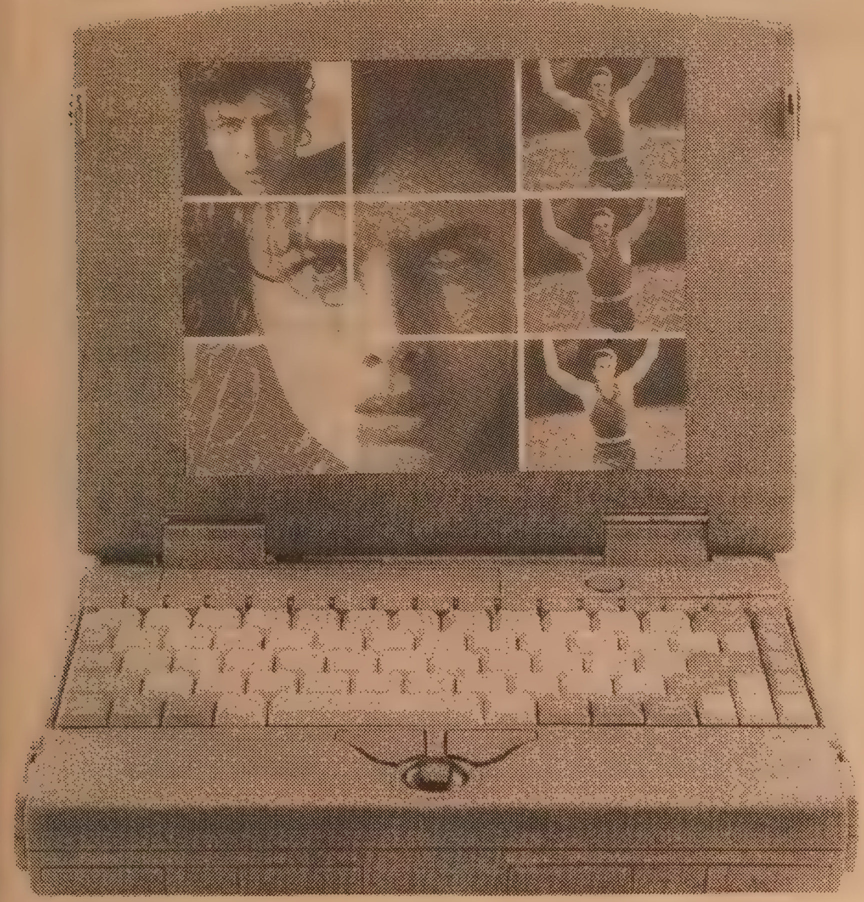

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* PowerBook is a trademark of Apple Corporation
* SoundBlaster is a trademark of Creative Lab

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PC MAGAZINE

> *"The unit's overall performance on our tests was very good. The ShowBOOK ranked in the top five in all tests... The ShowBOOK's standard local-bus video came through to secure the top Graphics WinMark score of* ***4.6 million*** *pixels per second..."*
>
> *- PC Magazine, Dec 21, 93*

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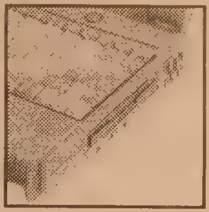
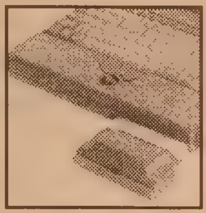


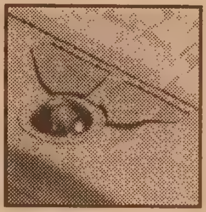
Add sound excitement to your presentation or work with recorded WAVE or MIDI files. With additional software, the ShowBOOK 4E can incorporate Voice Recognition.

Hot Swap Batteries...



The standard two rechargeable NiMH battery packs allows for hot-swap of any unit without turning the notebook off. This feature allows for uninterrupted battery usage.

Trackball...



The 25mm trackball located in the center of the palm rest gives you the convenience during any GUI session. No need to carry a mouse and get entangled by the cord.

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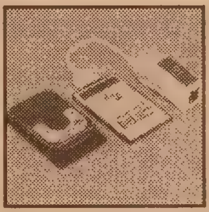

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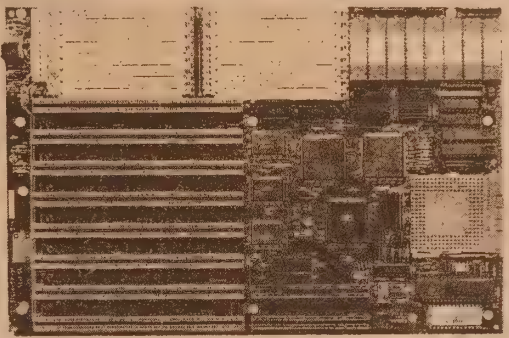

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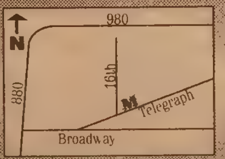

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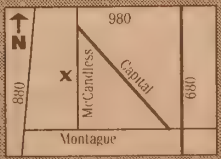

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MULTIMEDIA 101

Shifting Gears

Three events over the past three months illustrate different aspects of the widespread efforts to get the multimedia juggernaut out of first gear and up to speed on the highway.

EDUCATIONAL REVOLUTION

The International Interactive Communications Society (IICS), in its April meeting at the California Academy of Science, focused on the future of the multimedia industry in education. Mark Heyer, Brenda Laurel, and Larry Magid of the *Los Angeles Times* were the panelists and Jerry Kay of the Academy and National Public Radio was the moderator. The mood of the meeting circled between lighthearted joking, serious concern, pessimism, and calls for revolution.

Things got off to a lively start when Kay asked the panelists the leading question of what the future might be, given the dichotomy between the promises we hear of a technology-based learning environment and the financial difficulties schools currently deal with, which means among other things a shortage of phone lines. Mark Heyer immediately scored a big laugh with his "God knows" response and then revealed his revolutionary aspirations for new forms of interactivity by saying that "the forty-year television nightmare is over and we should lump schools in that category."

Brenda Laurel admitted to having a "cynical week," observing that the Internet connection to a school, if there is one, is generally for the principal and not for the students. She went on to note that many CD-ROMs and multimedia learning materials "simulate experiments" and do not allow students to really explore science for themselves. She feared that this reflects "a false epistemology about interactivity." The real aim of multimedia, she declared, is to achieve "parity with broadcasting" through extensive networking.

Larry Magid commented that "multimedia has had close to zero impact at my kids' school" despite his

BY JONATHAN E

donations of review copies of CD-ROMs to the school. He identified the real problems at the school as originating in social problems outside the school, leading to fighting in the halls and students without money to buy lunch. He said the students are illiterate about not only computers but also books and maps. Magid believes we might be in a situation where the Silicon Valley computer industry is "globally connected but locally disconnected."

The evening continued in a revolutionary vein of discontent with the current system of education and ideas for how multimedia, if used properly, could improve things. The essential requirement is to use it as a networking communications medium rather than simply as a new way to broadcast in the same old top-down model. As Laurel put it, "What counts is that the children get to have a voice." From both this event and other indications, it is becoming increasingly clear that the real meaning of interactivity is not point-and-click but people-to-people. How this will come about remains unclear, especially in educational institutions with their traditional hierarchical structures and under current social and economic conditions (though one member of the audience pointed out that things are not so bad in some other states). The members of the IICS are calling for some radical changes in the ways learning is done. Laurel was explicit that this involves "an economic revolution" and that "the replacement is up to us." My favorite line of the evening, attributed to Alan Kay, was both amusing and cautionary: "Attitude is worth 80 IQ points." Looks like we're in for a bumpy ride.

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"KILLER" CONTENT

So, for something completely different, I went to "Killer" Content, "a special networking seminar to explore multimedia applications, network with industry leaders, and engage with Award-Winning Media Moguls as They Share Insights About Delivering Compelling Content" (sic), an event hosted by the Multimedia Development Group and Pacific Bell in the San Francisco Marriott Hotel Grand Ballroom. The crowd at this event certainly did not look like revolutionaries. In fact—please excuse the expression—they looked like "suits," junior execs of both sexes, or perhaps straitlaced, trust-funded entrepreneurs.

The panelists on this occasion mostly came from at least semi-traditional media. Ed Saxon is a movie producer with *Silence of the Lambs* and *Philadelphia* among his credits. Steve Peterman is the producer of the *Murphy Brown* television show. Susan Brown is a print and new media consultant and president of Deep Content Solutions in Berkeley. Tom Lombardo is executive vice president of Whittle Communications Medical News Network. Scott Rosenfelt is another movie producer with *Home Alone* under his belt, as well as *ShadowCatcher*, billed as the first live-action interactive title. Garry Hare was the most cyber-active panelist as president of the Griffin Fathom Company, producers of *Escape From Cyber City* and *ABC Presents the Palm Springs Open.* Roland Wolfram and Hal Logan, both of Pacific Telesis, acted as moderators.

Wolfram reported that Pacific Bell plans to invest $16 billion in building its portion of the information superhighway and promised that its goals are for it to be "on-demand and innovative." He was also quite up-front in warning that if there is no compelling content to access, it won't work.

Steve Peterman immediately announced that he thinks the pipeline is secondary, that he doesn't know much about interactivity, and that he comes at things from an artistic standpoint. He feels that a danger for multimedia is that it will remain suitable only for primitive games, that without good content, it will be limited to games and educational tools. On the other hand, it could grow in fascinating ways and take on a life of its own. The key will be to "take subject matter that matters." He illustrated his concept with a clip from *Murphy Brown*, pointing out that laughter is recognition of a conversation or an experience you've had, something that matters to you. The most revealing detail he mentioned was that one of the lines in the clip took ten writers three and a half hours to get right. *Murphy Brown*'s producers do use a form of interactivity in that they check the electronic conferencing systems after a show to see what worked well and how the audience feels about plot development; this, by its very nature, is a more democratic process than older forms of measuring audience response.

Ed Saxon finds the idea of interactive media appealing. To make "killer" content work, he stated that it is necessary to "find the truth in human experience." This means that "the devil is in the details." One of the most important techniques for ensuring that you have "killer" content is to throw anything "non-killer" out, even material you've put a lot of work into. The rule of thumb is "When in doubt, throw it out." He showed a clip that didn't make it into the final version of *Silence of the Lambs*. It cost, he said, $100,000. He showed the clip that did make it into the final version. It was obvious what he was talking about. He closed by saying that digital media need "scribes and poets-people who can show on the page what will touch people on the screen."

After these two presentations, Susan Margolis was at a slight disadvantage without a video to show. However, she made a convincing case for her "Twelve-Step Program" for ensuring that you do have what she calls deep content, compelling content that touches the senses, the emo-

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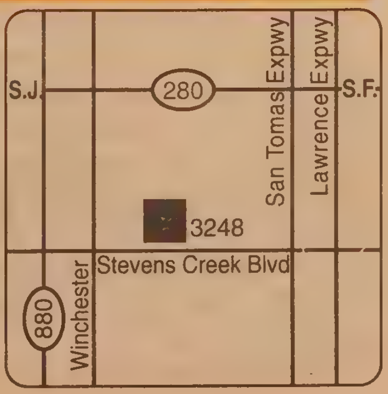

tions, and the mind. The twelve essential features that any media must offer to be compelling are good raw material, passion, vision, personality, fame potential, playfulness, challenge, psychological intimacy, surprise, news, payoff, and The Ring of Truth. She noted that multimedia is not appropriate for every message and that the urge to be original is vital.

Whittle Communications Medical News Network is a very specialized satellite television service for primary-care physicians. Tom Lombardo explained how the service was set up in some detail and showed fairly gruesome examples of what constituted "killer" content for its audience. "The key," he said, "is to define the audience very tightly." He demonstrated how that audience was catered to by the anchor person and covered how the potential conflict-of-interest issues were dealt with (if an advertiser is the subject of a news story, its ads are yanked for the day). One way the service is interactive is that the physician can request further details or samples from advertisers—any response required from the physician can be accomplished with the push of only one button. This and all other features were the results of extensive pre-launch testing.

If any industry has undergone a series of revolutions, it's the music business. Not only do styles and trends of music change at regular intervals, but the media with which music is delivered to consumers change fairly frequently.

Scott Rosenfelt showed a lengthy clip from *Home Alone*, inadvertently illustrating Lombardo's point of defining your audience. The movie was clearly made for kids. However, he also made the worthy point that media producers have a certain responsibility and that gratuitous violence should be avoided. Garry Hare said that he was striving for something new with his productions and noted that while people are interested in technology, CD-ROMs are not going to replace anything. His advice to would-be producers is to understand the structure of what you're trying to do. He laughed that "we steal everything and call it research."

I had gone into this seminar with a somewhat cynical attitude about what these "old-media" producers could offer the brave new digital dawn. I left with a new appreciation of the skills and talents necessary to make even linear media. As Rosenfelt commented after the *Murphy Brown* clip, "It's hard to create something that comes off the screen and makes you laugh." The evening offered quite a challenge and a lot of information to the crowd. If a revolution is to occur, this audience now knows some more of what is needed for success.

MUSIC & MULTIMEDIA '94

If any industry has undergone a series of revolutions, it's the music business. Not only do styles and trends of music change at regular intervals, but the media with which music is delivered to consumers change fairly frequently. While music continues to be culturally significant, it's also an industry that is comparatively flat in terms of revenue. Thus, it's no surprise that the music industry is trying hard to figure out what multimedia is all about. Music & Multimedia '94 was a daylong series of panel discussions and product presentations held at the Castro Theater on May 7 in association with the San Francisco International Film Festival. It might be considered one of the acid tests of the '90s, more from the point of view of the presenters than of the audience. Most of the titles shown are not yet on the market, some are only in the early stages of development—I was impressed that so many developers had the courage to stick their necks out in public.

The only panel I attended was "The Record of the Future," which broke down into a rather silly wrangle about royalties, although it was amusing to hear Todd Rundgren introduce himself with "I invented interactive music." Jeff "Skunk" Baxter made the good point that multimedia is waiting for someone to twist the technology as DJs did with scratching vinyl records (which, incidentally, foreshadowed sampling). I was amazed to hear Tom McGrew of Compton's New Media (remember the patent claim?) say that the industry is "forcing models that don't exist on markets that aren't here yet." Given the response this remark drew, Compton's should consider issuing their execs with bullet-proof vests for public appearances—or maybe they're thick-skinned enough as it is.

Todd Rundgren actually made a reasonable case for his claim with his presentation of No World Order. It does what he wants it to do, "giving the listener different places to stand" and clearly does not have to be enjoyed "in an office chair." While it does have some limitations in what the user can do with it, it is also remarkably flexible. As Rundgren observed, "instant creativity is a bogus myth," but he has given some creative options to the listener. The only other demonstration with comparable capabilities was Thomas Dolby's AVRe, which basically creates different music in a game depending on the ways a player moves the mouse and the game-playing style (fast/slow, a few or lots of clicks).

The major highlight of the evening was Joe Sparks' demonstration of Total Distortion. He was plagued by equipment

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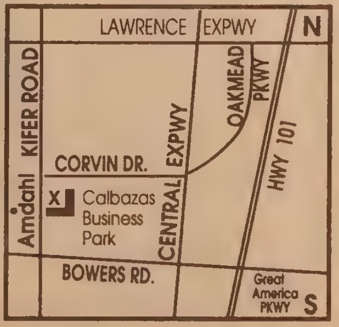

problems, but the imagination and wit that he and his team have put into the "adventure game" shone through bright and clear. Equally important, it has a certain attitude, a style, that engages one in the same way a good piece of work in any other medium does. The audience responded with more enthusiasm than for any other presentation.

Steven Rappaport demonstrated a very early prototype of Interactive Records' What's That Song? In fact, it was such an early prototype that he signed the publishing contract with Sanctuary Woods, the publisher, onstage, having literally wrapped up the final details only that afternoon. What's That Song? is a quiz game based on pop music. Its success will depend on getting all the details right in the final production, but, while the presentation was a little corny, it looked like it will be fun to play.

Tony Bove showed off Haight-Ashbury in the Sixties and I was pleasantly impressed. Obviously, it's a historical piece—what appeared to make it work was the content, written and edited by Allen Cohen, the original editor of the *Oracle* and an organizer of the first Human Be-In.

Other demonstrations I caught included: Ty Roberts with David Bowie Jump, a video-remixing project that paled beside Total Distortion; Xplora 1: Peter Gabriel's Secret World from Brilliant Media, about which reams have already been written including the February version of this column, suffice it to say that it does some things very well and leaves one hungry for more; Interactive [Whatever Prince calls himself these days], a sort of Myst for Prince fans. The other products shown that I saw were what I call coffee-table multimedia, big glossy productions that collect a lot of video and sound from the past and stick it together on a disc: The *Tommy* CD-ROM about Pete Townsend's epiphany; Grammy's Interactive, John Lennon's Imagine; and Heart: 20 Years of Rock and Roll, a fan-oriented scrapbook. Based on these short glimpses, this approach is closer to print publishing or documentary video than the future of music.

So is there a revolution coming in the music business? To quote Columbia's publicity slogan from the Summer of Love: "The man can't take our music." ■

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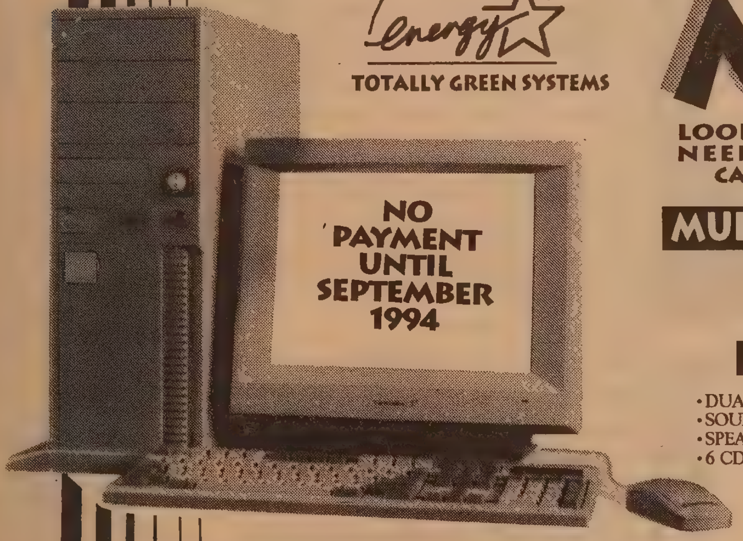

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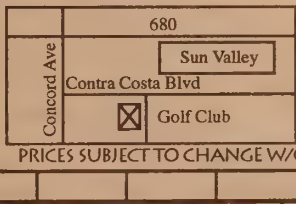

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Gulch Gossip

By Jonathan E.

The deal between **Wadsworth Publishing** and the **Downtown Extension of San Francisco State University** for development of multimedia studies material provoked a bit of a furor between members of the faculty and the administration. Whipped up by a pair of disgracefully inaccurate stories in the San Francisco dailies, the mood of the faculty members at a meeting to discuss the situation was described as "between totally outraged and a little miffed" by one observer.

Apparently the problem arose from the faculty feeling they were bypassed in general consultations leading up to the deal, as well as some personal animosities. A suggested underlying cause was that the growth of the multimedia studies program to nearly seventy faculty members has outstripped administrative resources devoted to keeping the program "a happy family." I'll bet that the issue of intellectual property rights is also a stumbling block. Given the attention that particularly thorny issue has received in the multimedia field, it would be rather ironic if it wasn't resolved upfront.

This might yet all be a tempest in a teapot, and it's worth remembering that the multimedia studies program is one of San Francisco State's few (maybe its only) recent success stories, the largest multimedia studies program in the world, and that it's a real resource for the Bay Area's multimedia industry.

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Substance.digizine is finally shipping on July 5th, having secured a two-year, eight-issue distribution contract with **Sony** that will get them onto the racks in both music outlets and computer channels. The first issue is based on the well-circulated demo, but there's new content and what was on the demo has been polished up for the official release. The **Trent Reznor** and **Nine Inch Nails** feature was totally redone. **Alex Ragland** estimated that this version was actually 70%–80% different from the demo. The disc contains more than forty-five minutes of video, twenty minutes of Red Book audio, and is MPC Level 2 standard. Subscriptions are $79 a year (for four seasonal issues) from 444 Grove St., San Francisco, CA 94102-4303; (415)626-2147. There's a Japanese version already out. **Substance Interactive Media** are also producing an "interesting" project for **Time-Warner** and a game for the Japanese company, **Bandai Toy Co.**, as well as doing some work for **Wells Fargo**.

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Morph's Outpost On The Digital Frontier is getting into the consumer magazine market with a new monthly, ***Blast!—International Digital Style***, set for October launch. **Doug Millison** explains that it will treat multimedia as a music magazine treats music, exposing the people behind digital technology, as well as covering computers and lifestyles. He says that "While *Wired* is for older people trying to figure it all out, *Blast!* is for kids who grew up in a wired society, screenagers who are grounded in the digital age." The magazine will go through the usual magazine distribution channels, but will also demonstrate the new meaning of multimedia—it'll be bundled with **Creative Labs** multimedia kits. **Ferris Ferdon** has left **New Media** to become the associate publisher of *Blast!* and will also consult to Morph's.

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SBD Productions have signed **Bobby Slayton** for their **Johnny Cocktails** CD-ROM (the working title—it may change), which will also feature what is thought to be the first use of claymation stop-motion animation on CD-ROM—supplied by the **Hill Roberts Studio** of London, who have also done animation for Britain's **Channel 4**. **Erik Adigard** and **Patricia McShane** of the South of Market **M. A. D.** design studio are working on the graphics for SBD's **How To Be Perfect** title, which will also feature "a big theatrical name we are currently negotiating with." The finished discs will be distributed by **Great Bear Software**.

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C/NET, the new cable TV network-to-be of cyber-techno news, is now ensconced in its new San Francisco headquarters, tying up the final details of its distribution, and developing its post-pilot content. ... Meanwhile, **George Pavlik** hosts **Multimedia Exposed**, a new show about you know what on **KCSM** out of San Mateo.

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The Multimedia Development Group is offering a business planning seminar for multimedia start-ups by **Ken Owyang** of **Coopers & Lybrand** on July 20th. It takes place on the 22nd floor at 333 Market St., SF, and registration starts at 8:15 am. You'll learn how to come up with a winning business plan to present to investors. It's free for MDG members, $50 for nonmembers. Further info from (415) 957-3084.

After its first successful year getting organized and putting on events, MDG's main project for its second year is developing "white papers" on its events and other concerns to multimedia developers that will be disseminated online, and getting involved with legislative issues that affect the industry. It's also looking at ways to hold its next elections for its officers online, having not had enough ballots returned for a voting quorum in May when relying on "snail mail."

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My mistake: I got **Jonathan Nelson**'s email address wrong in our last issue. It should be organic@organic.com . Meanwhile, **Organic Online**'s launch has been pushed back to August to allow for the installation of bigger Internet "pipes." ■

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- Weight **6.6lbs**

Mono 64GS	**$1865**
Dual Scan	**$2355**
Active Color	**$3335**

Pentium

Model 3600

- Intel **PENTIUM** CPU **60/66**MHz
- **16K Cache** (Built-in)
- Built-in **Audio, MIC, Speaker**
- **Sound Blaster & Win 3.11 Compatible**
- **32-Bit VESA Local Bus Video & IDE**
- **1MB Video RAM w/Win Accelerator**
- **PCMCIA III & II**
- **8**MB RAM (exp. to 16/24/**40**MB)
- 1.44MB Floppy Drive
- **Removable 250MB** Hard Drive
- Built-in **front-center 19mm Trackball**
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- Carrying Case,
- Weight **8.15lbs**

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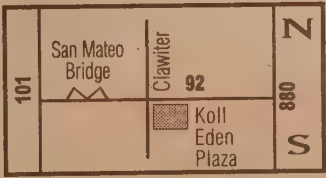

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- UMiracle **P5 Pentium** P54VL-PCI 512K L2 15ns Cache Motherboard with 4 PCI's/5 16-Bit ISA's/2 VLB Extensions, Power Saving Mgmt, Flash AMI BIOS
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- 16Bit IDE/FD 2S/1P/1G with HiSpeed 16550UARTs, 2.88MB Support
- Adaptec 2940 PCI Fast SCSI-2 Controller (Bare)
- 1.2M & 1.44M TEAC Floppy Drives
- 1.08GB Quantum Fast Wide SCSI-3 512K Empire 1080S HD
- Diamond Viper Pro PCI Weitek P9100 2MB VRAM (upto 4MB)
- Mag DX17F 1280x1024NI 0.26DP Multisync Digital Green Monitor
- Premium Digital Full Tower 250W PS
- 101 Keytronic Keyboard

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Dare to Compare

WinStone 94........... 105.1

Test result based on our 90MHz system with ATI Turbo Pro PCI 2MB Video card. Viper Pro not yet available at testing time. See your PC Magazine for comparsion.

UMiracle P5 PCI 60/66MHz

- UMiracle P5 PCI 256K L2 Cache Motherboard with 4 PCI's/4 ISA slots, Onbrd PCI NCR Fast SCSI-2
- 16MB 70ns 72Pin SIMM RAM (8MB x 2pcs)
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- 1.2M & 1.44M TEAC Floppy Drives
- 1.08GB Quantum Fast Wide SCSI-3 512K Empire 1080S HD
- Diamond Stealth 64PCI 2MB VRAM (upto 4MB)
- Mag DX17F 17" 1280x1024NI 0.26DP Digital Green Monitor
- Premium Digital Medium Tower 230W PS
- 101 Keytronic Keyboard

60MHz $3685

UMiracle 66MHz $3751

Dare to Compare

PC Bench 8.0 and WinBench 4.0 Result

- Processor............. 77.01
- Video.................... 1524.52
- Disk...................... 1813

DOSMark................ 870.66
Graphics WinMark.. 19.00
Disk WinMark......... 1490

Test result based on our 66MHz system with Diamond Viper PCI 2MB Video card. Stealth 64 not yet available at testing time. See your PC Magazine for comparsion.

UMiracle 486 IXR PCI

UMiracle

- UMiracle 486 PCI 256K L2 Cache Motherboard with 3 PCI's/4 ISA slots, Onbrd PCI NCR Fast SCSI-2
- 8MB 70ns 72Pin SIMM RAM (4MB x 2pcs)
- IDE I/O 2HD/2FD 2S/1P/1G
- 1.2M & 1.44M TEAC Floppy Drives
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- 101 Keytronic Keyboard

33SXIntel-$1963
33DXIntel-$2111
40DXAMD-$2068
50DX2AMD-$2083
66DX2AMD-$2106

READY TO GO

Dare to Compare

PC Bench 8.0 and WinBench 4.0 Result

- Processor............. 45.75
- Video.................... 1528.63
- Disk...................... 1110.00

DOSMark................ 600.31
Graphics WinMark.. 15.4
Disk WinMark......... 1030

Test result based on our 66MHz system with Diamond Viper PCI 2MB Video card. Stealth 64 not yet available at testing time. See your PC Magazine for comparsion.

AIR 486 EISA VLB - EI-Line

READY TO GO

- 486 AIR-EI 8 EISA/3 VLB 256K Cache Motherboard
- 16MB 70ns 72Pin SIMM RAM (16MB x 1pc)
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- Diamond Stealth 64 VLB 2MB VRAM (upto 4MB)
- Mag DX17F 17" 1280x1024NI 0.26DP Digital Green Monitor
- Premium Digital Medium Tower 230W PS
- Honeywell 101 Enhanced Keyboard

33SXIntel-$3085
33DXIntel-$3233
40DXAMD-$3190
50DX2AMD-$3205
66DX2AMD-$3228

Dare to Compare

PC Bench 8.0 and WinBench 4.0 Result

- Processor............. 46.51
- Video.................... 1351.86
- Disk...................... 1524

DOSMark................ 623.14
Graphics WinMark.. 15.8
Disk WinMark......... 1240

Test result based on our 66MHz system with Diamond Viper VLB 2MB Video card. Stealth 64 not yet available at testing time. See your PC Magazine for comparsion.

AIR

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- -Audio Cable

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AIR 486 ISA VLB - MIS-Line

READY TO GO

- ○486 AIR-MIS ISA VLB 256K Cache Motherboard w/ Integrated Adaptec VLB-SCSI-2, VLB-IDE, I/O
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- ○1.2M & 1.44M TEAC Floppy Drives
- ○420MB Western Digital IDE WDAC2420 HD
- ○S3-805 VLB 1MB Windows Accelerator
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- ○Premium Digital Medium Tower 230W PS
- ○Honeywell 101 Enhanced Keyboard

33SXIntel-$1608
33DXIntel-$1756
40DXAMD-$1713
50DX2AMD-$1728
66DX2AMD-$1751

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Advanced Integration Research, Inc

Dare to Compare

PC Bench 8.0 and WinBench 4.0 Result

- Processor	45.37
- Video	3665.02
- Disk	1191
DOSMark	698.17
Graphics WinMark	8.55
Disk WinMark	1040

Test result based on our 66MHz system. See your PC Magazine for comparsion.

AIR 486 ISA VLB - SH-Line

READY TO GO

- ○486 AIR-SH ISA 3 Slot VLB 256K Cache Motherboard
- ○4MB 70ns SIMM RAM (1MB-30Pinx4)
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- ○S3-805 VLB 1MB Windows Accelerator
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- ○Honeywell 101 Enhanced Keyboard

33SXIntel-$1206
33DXIntel-$1354
40DXAMD-$1311
50DX2AMD-$1326
66DX2AMD-$1349

AIR
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Dare to Compare

PC Bench 8.0 and WinBench 4.0 Result

- Processor	39.85
- Video	3663.29
- Disk	1044.03
DOSMark	633.09
Graphics WinMark	8.51
Disk WinMark	844

Test result based on our 66MHz system. See your PC Magazine for comparsion.

UMiracle 486 Green ISA VLB

UMiracle

- ○486 Green ISA VLB 256K Cache Motherboard
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- ○1.2M & 1.44M TEAC Floppy Drives
- ○420MB Western Digital IDE WDAC2420 HD
- ○S3-805 VLB 1MB Windows Accelerator
- ○KFC 14" 1024X768NI 0.28DP Monitor
- ○Premium Digital Mini Tower 230W PS
- ○Honeywell 101 Enhanced Keyboard

33SXIntel-$1151
33DXIntel-$1299
40DXAMD-$1256
50DX2AMD-$1271
66DX2AMD-$1294

READY TO GO

Dare to Compare

PC Bench 8.0 and WinBench 4.0 Result

- Processor	38.13
- Video	3659.41
- Disk	1015.00
DOSMark	609.83
Graphics WinMark	8.48
Disk WinMark	793

Test result based on our 66MHz system. See your PC Magazine for comparsion.

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- While-you-wait immediate service should there be any neccessary warranty repair. If we couldn't solve the problem, another system will be built (at our discretion, if purchased within 30 days.)
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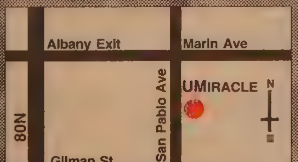

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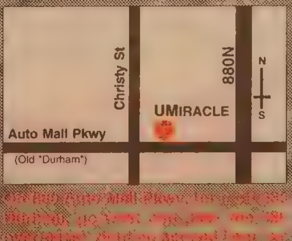

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486 AIR-UL ISA VLB 256K - 8 ISA/3 VLB slots, Upto 32MB onbrd, 64MB with Expansion Board, using 30Pin, ZIF, P5 OD support, Bus-master, U.S.Quality............	$160
Memory Expansion Card 32MB for AIR-UL...........	
486 AIR-MI ISA VLB 256K - 3 VLB slots, Upto 128MB by 72Pin, ZIF, P5 OD support, Bus-master, VLB IDE, FD, 2S/P/G, Power Saving Mgmt, U.S.Quality.........	
486 AIR-MIS ISA VLB 256K - 2 VLB slots, Upto 64MB by 72Pin, ZIF, P5 OD Support, Bus-master, VLB IDE, FD, 2S/1P & VLB SCSI-2 w/ Adaptec 6360 chipset, and EZ-SCSI software driver,U.S.Quality............	
486 AIR-EI Full EISA VLB - 3 VLB Slots, Upto 256MB by 72Pin SIMM, ZIF, P5 OD Support, Bus-master, 8 EISA/3 VLB slots, U.S.Quality (256/512K)....	
486 Micronics ISA VLB JX-30 256K, VLB IDE, I/O.....	
486 Micronics EISA VL BUS 256K, IDE, 2S/P/G, Full size, Flash BIOS, Upto 64MB by 72Pin........................	
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Pentium P5 PCI 256K - 4 PCI, 4 ISA Slots, ZIF, Intel Mercury ChipSet, Upto 128MB by 72Pin SIMM, Bus-master, Dallas onboard Battery, Phoenix BIOS, onbrd PCI NCR SCSI-2 Controller, 60/66MHz, Complete drivers for OS/2, NT,UNIX............	
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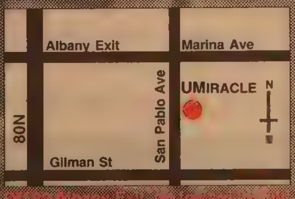

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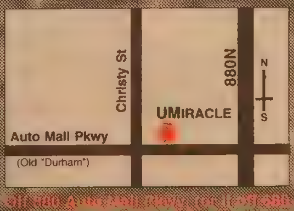

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A Wealth Of CD-ROMS

New Titles Show Interesting Possibilities

While CD-ROMs originated as a storage-and-retrieval solution, they now deliver education and entertainment in a wide range of subjects.

MUSICAL INSTRUMENTS

A classic example of a CD-ROM that exemplifies the real benefits of multimedia versus the hype is Microsoft Musical Instruments ($69, Mac & Windows), a clearly designed, comprehensive click 'n' listen, overview of world music. Another title, Murmurs of the Earth: The Voyager Interstellar Record ($59, two CDs, Time Warner, Mac & PC) holds the images, music and sound that were sent out in a droid to greet other beings; Musical Instruments should go along for the ride as well.

In a bright, uncluttered environment, you can choose an instrument or ensemble, look at different views of the piece, hear the name of the instrument, read background material, see other related instruments in its family, play a sample of its sound, and in many cases, open a Sound Box window. There you can hear its range of notes or click on each key. You can study Families of Instruments, Musical Ensembles, Instruments of the World, and Instruments A–Z. A world map lets you click on miniature instruments to hear them in the countries where they're played.

Musical Instruments is especially noteworthy because it lifts the barriers between folk and ethnic, classical, jazz, and popular music, showing them all as a great extended family of expressions. You get the chance to hear and compare not only Western instruments, but—side by side—reed, brass, percussion, and string instruments from other cultures. You can spend hours going through them all: a hurdy gurdy, an African kora and a Japanese koto, and on to an electronic piano and a synthesizer.

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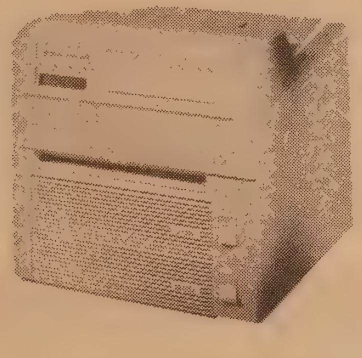

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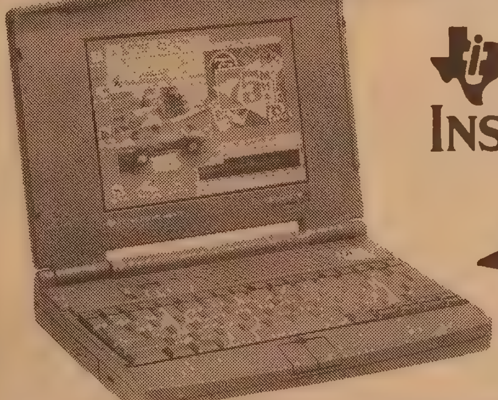

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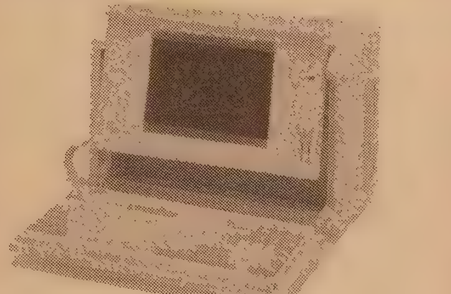

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Things That Make You Go Hmmmm!

#1

Although the new i486DX4 is running at 100MHz the Pentium 60MHz is considerably faster. Why? 1) The Pentium is 64-bit architecture as opposed to 32-bit for the i486DX4. 2) The Pentium is a superscalor i.e. executes two (or more) instructions per one cycle as opposed to one for i486DX4. 3) On a 60MHz Pentium based system, both the Processor and board run at 60MHz. On a i486DX4 system on the other hand, the board runs at 33MHz while the Processor runs at 100MHz!

Hmmmm! Hmmmm! Hmmmm! Hmmmm! Hmmmm!

PowerPC is making its move into the mainstream, and many of you are considering buying a PowerPC based system instead of a 486 or Pentium system. Sure, since you're promised to run your DOS and Windows applications on it. But what you might not have known is that until these applications are written *specifically* for the PowerPC, they will run in *EMULATION* mode! Which means they will run as if they were running on a 386SX or slower based system!

Hmmmm! Hmmmm! Hmmmm! Hmmmm! Hmmmm!

The 90MHz (60x1.5) and 100MHz (66x1.5) Pentium Processors differ from the 60/66MHz in more ways than the speed. The newer Pentiums (code named P54C) incorporate new features such as the SL (3.3V vs. 5V) technology for power management and .6 micron BiCOMS technology with 3.3Mil transistors instead of .8 micron and 3.1Mil transistor. The increase in transistors enabled the processor to integrate components that were previously external to the processor (e.g. Multi-processor interrupt controllers) in addition to increasing the speed of communication between these components!

From the Engineering Department of NOW Electronics, Inc.

REVENGE

$3195

Pentium 60MHz Processor
Intel Premiere Motherboard
Diamond Viper PCI Video

BATMAN'S REVENGE
66MHz
$3295

Specification:

- 60MHz Intel Pentium Processor 16K
- Intel Premiere/Batman 64-bit Motherboard
- 16MB 70ns RAM, 256K WB cache
- Western Digital 425MB IDE 12ms HD
- 1.44MB Floppy Drive
- ViewSonic 15 Flat .28dp NI Monitor
- PCI Diamond Viper PCI 2MB VRAM
- PCI Integrated IDE Controller
- Deluxe Medium Tower Case 250W
- 101 KeyTronic Keyboard
- 2-PCI, 4-ISA and 1-PCI/ISA slots
- OverDrive Socket, 16554 Ports
- DOS 6.2, Windows 3.11 & Mouse

Special Features:

The Revenge incorporates the latest motherboard from Intel Corporation-Premiere Batman, and a Video Card that is designed by the leader in Graphics accelerator Cards-Diamond Computer Systems.

*Benchmarks**

- *WinMarks (million)*.................**84**
- *LandMark v.3.1 (ps/sec)*
  - *CPU*.................**2699**
  - *FPU*.................**1069**
- *iCOMP*.................**510**
- *SPECint/fp92*.................**63/55**

EVOLUTION

$4495

Pentium 66MHz Processor
EISA/PCI/ISA Bus
Matrox Ultima MGA Video

MICRONICS M5PE
$4795

Specification:

- 66MHz Intel Pentium Processor 16K
- EISA/PCI 64-bit Motherboard
- 16MB 70ns RAM, 512K WB cache
- 1.0GB Quantum FSCSI-2 512K Cache
- 1.44MB Floppy Drive
- ViewSonic 17G Flat .28dp NI Monitor
- PCI Matrox MGA 64-bit 2MB VRAM
- PCI Fast SCSI-2 Controller
- GT-300 Full Tower Case 300W w/Door
- Focus 2001 Click Keyboard
- 3-PCI, 4-EISA and 1-PCI/EISA slots
- Pentium OverDrive ZIF Socket
- 16550 UART Serial Ports
- DOS 6.2, Windows 3.11 & Mouse

Special Features:

The Evolution delivers the ultimate in bus architecture by combining the PCI and EISA buses. It is ideal for 32-bit operating systems where addressing virtual memory above 16MB/ISA boundaries is an essential issue!

*Benchmarks**

- *WinMarks (million)*.................**92**
- *LandMark v.3.1 (ps/sec)*
  - *CPU*.................**2894**
  - *FPU*.................**1188**
- *iCOMP*.................**567**
- *SPECint/fp92*.................**70/63**

ECCENTRA

$4395

Pentium 90MHz Processor
Qlogic RISC PCI Controller
ATi Mach64 Video

Specification:

- 90MHz Intel Pentium Processor 16K
- Intel Premiere/PCI II 64 bit Motherboard
- Intel Neptune PCI Chip-set
- 16MB 70ns RAM, 256K WB Cache
- 540MB Quantum SCSI-2 Fast 256K
- 1.44MB Floppy Drive
- 15" MAG MX15F Flat .28dp NI Monitor
- PCI ATi Turbo Mach64 64 bit 2MB VRAM
- PCI Qlogic Fast Wide SCSI-2 Controller
- Full Tower Case 300W PS
- Focus 2001 Click Keyboard
- 2-PCI, 4-ISA and 1-ISA/PCI slots
- OverDrive Socket, 16550 UART Ports
- DOS 6.2, Windows 3.11 & Mouse

Special Features:

With Benchmarks of 123Mil Winmarks on the Video and up to 20MB/Sec sustained transfer rate on the hard drive, the Eccentra is the best choice for applications that are video and hard drive intensive.

*Benchmarks**

- *WinMarks (million)*.................**123**
- *LandMark v.3.1 (ps/sec)*
  - *CPU*.................**3493**
  - *FPU*.................**1604**
- *iCOMP*.................**735**
- *SPECint/fp92*.................**90/72**

ENIGMA 100

$5995

Pentium 100MHz Processor
Intel Boomerang Motherboard
17" NEC 5FGp Monitor

ENIGMA 90
$5795

Specification:

- 100MHz Intel Pentium Processor 16K
- Intel Premiere/PCI II 64 bit Motherboard
- Intel Neptune PCI Chip-set
- 16MB 60ns RAM, 256K WB Cache
- 1.0GB Quantum Empire FSCSI-3 9ms
- PCI Adaptec 2940 FSCSI-2 Controller
- 1.44MB Floppy Drive
- 17" NEC 5FGp 1280X1024 Monitor
- PCI ATi Ultra Pro Turbo 64-bit 4MB VRAM
- GT-300 Full tower case 300W w/Door
- Focus 9000 Programmable Keyboard
- 2-PCI, 4-ISA and 1-ISA/PCI slots
- OverDrive Socket, 16554 Ports
- DOS 6.2, Windows 3.11 & Mouse

Special Features:

Enigma delivers a performance that is unprecedented on a PC platform, its benchmarks exceed those of workstations that often cost 3–4 times as much. Enigma also features the sharpness and brightness of the NEC 5FGp 17" monitor.

*Benchmarks**

- *WinMarks (million)*.................**123**
- *LandMark v.3.1 (ps/sec)*
  - *CPU*.................**3988**
  - *FPU*.................**1782**
- *iCOMP*.................**815**
- *SPECint/fp92*.................**100/80**

**Obtained from the Manufacturers' Specs/ads*

RISC Processor Based Systems-32-bit/64-bit Local Bus/PCI-MIPS and DEC's Alpha!

Introducing a new line of high-performance systems based on RISC processors. Now you can configure your own RISC based system. All systems are Pre-loaded with Microsoft Windows NT and are specifically tuned to optimize its performance.

MIPS RISC 4000/4400 50/100MHz & 75/150MHz

- 64-bit MIPS design RISC Processor
- R4000PC-100/133MHz (2X) 16K int. Cache
- R4400PC-100/150MHz (2X) 32K int. Cache
- 512K External L2 Cache
- 16MB RAM 72-pin 64-bit Bus (max 256MB)
- 540MB Fast SCSI-2 8.5ms Hard Drive
- 64-bit Integrated Fast SCSI-2 interface
- 1.44MB High-density Floppy Drive
- 64-bit Local Bus Video adapter 2MB VRAM Upgradeable to 4MB 1280x1024 16.7M colors
- Deluxe Full-Tower Case 250W with door
- 101 Enhanced PS/2 compatible Keyboard
- 5-ISA Expansion Slots
- Integrated 2S and 1P Ports
- 32-bit Integrated Ethernet adapter
- Microsoft Windows NT with License
- Designed and Manufactured in the U.S.A.
- (Monitor not included)

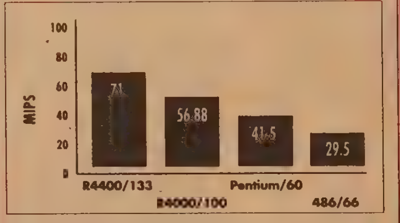
R4000 50/100MHz........$3995
R4400 50/100MHz........$4295
R4400 67/133MHz........$4595
R4400 75/150MHz........$5195

DEC Alpha AXP RISC 166/200MHz-PCI Bus

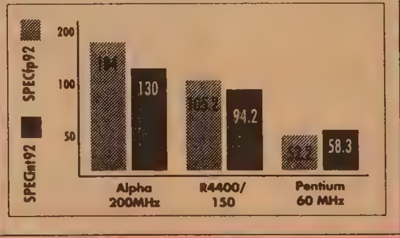
- 64-bit DEC Alpha AXP RISC Processor
- 166MHz or (200MHz) Processor option
- 256 (512K) External Cache
- 16MB RAM on 64 (128)-bit Memory Bus
- 540MB Fast SCSI-2 8.5ms Hard Drive
- 1.44MB High Density Floppy Drive
- 32-bit PCI Integrated Fast SCSI-2 interface
- 32-bit PCI local Bus Video adapter 2MB VRAM Upgradeable to 4MB 1280x1024 16.7M colors
- Deluxe Baby AT (Full-Tower) Case 250W
- 101 Enhanced Keyboard
- 2-PCI and 3-ISA slots
- Integrated 2S and 1P Ports
- 32-bit PCI Integrated Ethernet adapter
- Microsoft Windows NT with License
- Designed and Manufactured in the U.S.A.
- (Monitor not included)

DEC Alpha 166MHz.........$5395
DEC Alpha 200MHz.........$6695
Please Call for DEC Alpha on EISA Bus

MIPS R4400/150 vs. Pentium/60



Power Meter benchmarks under Windows NT



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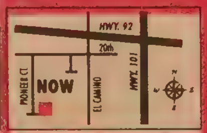

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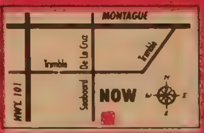

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Dublin, CA 94568
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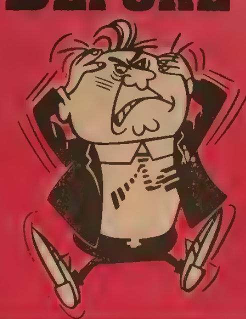
VILLAGE PRKWY
DUBLIN BLVD.
HWY. 580

Mr. Wise was Shopping for a Computer!

- Should I buy ISA, EISA, VESA or PCI?
- Should I buy from local, name-brand or mail-(dis)order?
- Do mail order companies help me in future upgrades?
- Why should I wait 4–6 weeks to get my system?
- How come some ads look too good to be true?
- How can I tell I will receive what I ordered?

BEFORE



AFTER

Mr. Wise bought a NOW Computer!

- I paid the right price for the right system
- I was treated as a customer, not a number
- System received on the day I was promised
- Configuration was exactly as I specified
- Warranty and Support were outstanding
- I can count on NOW for future upgrade and help
- I recommend NOW to all my friends

COMMANDER

"Just the right configuration" for "Just the right price" system! Ideal for those who seek a fast, reliable and upgradeable system and are on a tight budget.

i486DX2/66MHz Processor
VESA/ISA Green Motherboard
Diamond Stealth 24 Video

- 66MHz Intel i486DX2 Processor 8K
- ASUS or AIR Green VESA Motherboard
- 8MB 70ns RAM, 256K WB cache
- Western Digital 340MB IDE 12ms HD
- 1.2 and 1.44MB Floppy Drives
- 15" ADI MicroScan 4G Monitor
- Diamond Stealth 24 VLB Video Card
- Promise Tech. IDE VLB Controller
- Medium-tower Case 230W
- 101 Enhanced Keyboard
- 2-VESA (3 on AIR) and 5-ISA slots
- Pentium OverDrive P24T/CT Socket
- DOS 6.2, Windows 3.11 & Mouse

$1995

Add $320 for 486DX4/100MHz

BEST BUY GEMINI 17

The Gemini 17 satisfies two of the most desired features in a new PC nowadays; 17" Monitor and PCI Local Bus, while maintaining a very low price that is hard to resist.

ASUS PCI/ISA Motherboard
17" ADI .26dp Flat Monitor
PCI Fast SCSI-2 interface

- 66MHz Intel i486DX2 Processor 8K
- ASUS ISA/PCI Motherboard
- 256K write-back cache up to 512K
- 8MB 72-pin 70ns RAM up to 128MB
- Quantum 340MB SCSI-2 Hard Drive
- 1.44MB Floppy Drive
- 17" ADI MicroScan 5A .26dp Flat Monitor
- PCI Stealth32 Video Card 1MB
- PCI Fast SCSI-2 Controller
- Medium-Tower Case 230W PS
- Focus 2001 Click Keyboard
- 3-PCI, 5-ISA Expansion slots
- Pentium OverDrive P24T/CT Socket
- DOS 6.2, Windows 3.11 and Mouse

$2395

NEW!!! ASPIRE

For those who have been aspiring for an affordable Pentium system from NOW, the ASPIRE combines the processing power of the Pentium with affordable brand-name components and excellent upgradeability.

Pentium 60MHz Processor
Intel Premiere Motherboard
Diamond Stealth32 Video

- 60MHz Intel Pentium Processor 16K
- Intel Premiere/PCI 64-bit Motherboard
- 8MB 70ns RAM, 256KB WB Cache
- Western Digital 340MB IDE 12ms HD
- 1.44MB Floppy Drive
- 15" ADI MicroScan 4G Monitor
- PCI Stealth32 2MB RAM Video Card
- PCI Integrated Enhanced IDE Controller
- Medium-Tower Case 230W
- 101 KeyTronic Keyboard
- 2 Serial 16554 UART and 1 Par. Ports
- 2-PCI, 4-ISA and 1-ISA/PCI Slots
- Pentium OverDrive Socket
- DOS 6.2, Windows 3.11 & Mouse

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EW!!! HOMEMEDIA

HomeMedia brings your entire family endless hours of entertainment, education and lots of fun. Bundled with the most popular Microsoft CD titles on the market, the HomeMedia is the Ultimate Home PC.

- 66MHz Intel i486DX2 Processor 8K
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- Genoa 8500VL 1MB Video Card
- Promise Tech VLB IDE Controller
- Medium Tower Case 230W
- 101 Enhanced Keyboard
- DOS 6.2, Windows 3.11 & Mouse
- Toshiba 3401B 2X 200ms CD-ROM
- Sound Blaster 16 w/SCSI-2 Port
- Labtec 550 Amplified Speakers

- 4 Best Microsoft Titles
- Encarta 94 MPC
- Dinosaur MPC
- Cinemania 94 MPC
- Bookshelf 94

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Our Economy PC line is designed for those who need a low level entry system with room for future expansion. Priced at rock bottom prices, below competition, while preserving the high-quality and superior service of NOW!

- Intel i486SX/DX/DX2 Processor
- VESA Local bus Motherboard
- 4MB 70ns RAM, 256K cache
- 170MB IDE 12ms Hard Drive
- 1.2 or 1.44MB Floppy Drive
- 14" SVGA .28dp Non-Int. Monitor
- VESA SVGA accelerator 1MB Video Card
- VESA IDE Controller with Ports
- Mini-tower or Desktop Case 200W
- 101 Enhanced Keyboard
- Pentium OverDrive ZIF Socket

i486SX/ 33MHz	$999
i486DX/ 33MHz	$1175
i486DX2/ 66MHz	$1325
i486DX4/ 100MHz	$1650

Why Buy NOW?

NOW GUARANTEES YOUR SATISFACTION!

NOW employees are *your* employees. We are dedicated to satisfying our customers, and we are willing to do whatever it takes. NOW offers lifetime technical support (with optional 24 hour toll-free), a post-sale upgrade option, an on-site service option, and a 30 day money back guarantee. NOW is a member of the Better Business Bureau for those interested in checking our service and support history.

NOW CONFIGURES A SYSTEM THAT BEST FITS YOUR NEEDS

At NOW, we view our computer systems as tools – tools that are used to accomplish certain tasks. If the tool is not designed correctly, then the tasks won't be accomplished efficiently. With this in mind, our goal is to build you a system that fits your specific requirements. Don't be fooled by "dirt cheap" or "lowest price" advertisements – call our sales staff and consult with them on a system configuration that fits *your* needs.

NOW IS THE CORPORATE CHOICE

For years, NOW has been supplying the corporate world with state-of-the-art computers and services. Our corporate customers are our business partners – we understand their needs and we go to extremes to satisfy those needs in the most efficient and productive manner possible. Our corporate customers enjoy NOW's outstanding service and support program – a program that is unparalleled in the industry. Our corporate services include (but are not limited to) on-site service, free pick-up & delivery; 24 hour turn-around time for system repairs, temporary loaners for items that are being repaired, and a dedicated sales representative. If you represent a corporation (small, medium or large), give NOW the opportunity to become your system supplier – we won't let you down.

NOW IS A TECHNOLOGY LEADER

For many people, NOW is the source for information about the latest cutting-edge technology. When it comes to being an industry leader, NOW is always ahead of the competition. If you are always on the lookout for the latest technology, read our ads – we keep you ahead of the crowd.

MULTIMEDIA UPGRADE KITS

KIT #1 STARTER KIT $269
- Panasonic 562 dbl spd/320ms
- Sound Blaster Pro Deluxe
- Two stereo speakers

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- Pro Audio Studio 16
- Labtec 550 amplified speakers

KIT #3 ULTIMATE KIT $669
- NEC 3Xi triple speed 195ms
- Sound Blaster 16 SCSI-2 port
- Altec ACS-50 speakers

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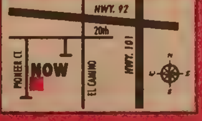

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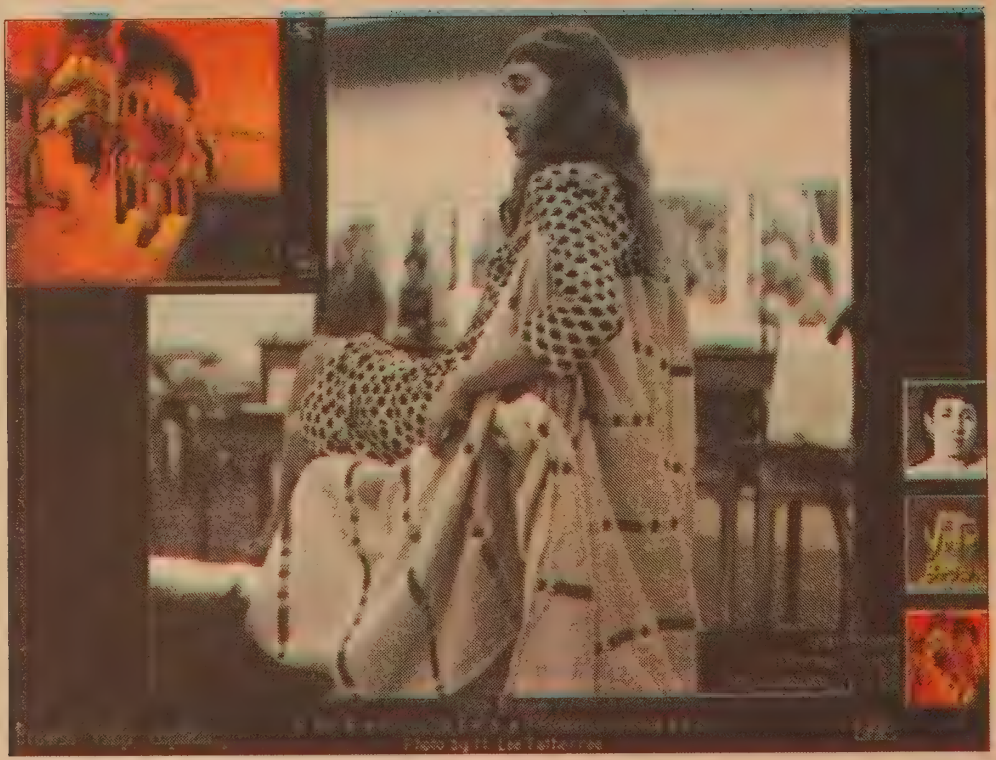
American Visions: 20th Century Art



Indonesian gamelans and their beautiful instruments, but lets you compare the sounds of Javanese—the style favored by most Bay Area gamelan ensembles—and Balinese. This CD is a keeper.

AMERICAN VISIONS: 20TH CENTURY ART

CD-ROMs excel at holding vast libraries of picture material for the study of art. With good multimedia design, they can go even further—enhancing our appreciation and understanding of art.

Art can be analyzed by medium, national style, historical period, and other criteria. Another approach, and often a more intuitive and human way, is through the study of the work of a dedicated collector, where works are connected by the commonality of "what matters." Eden Interactive's American Visions: 20th Century Art from the Roy R. Neuberger Collection ($99, Macintosh) does this by focusing on Neuberger's collection, and therefore his aesthetic worldview.

We can "walk into" the Roy R. Neuberger Museum of Purchase, NY, by loading a CD-ROM into a Mac. While the collection on disk consists of "only" 210 works, multimedia makes it multidimensional. In addition to the paintings, prints, photos, and sculptures in the collection, whose files are available in four levels of resolution, there are hundreds of ancillary photos, QuickTime movies, sounds, and text. They're organized around the works in different contexts, permitting them to add their real-world dimensions of culture, society, and politics.

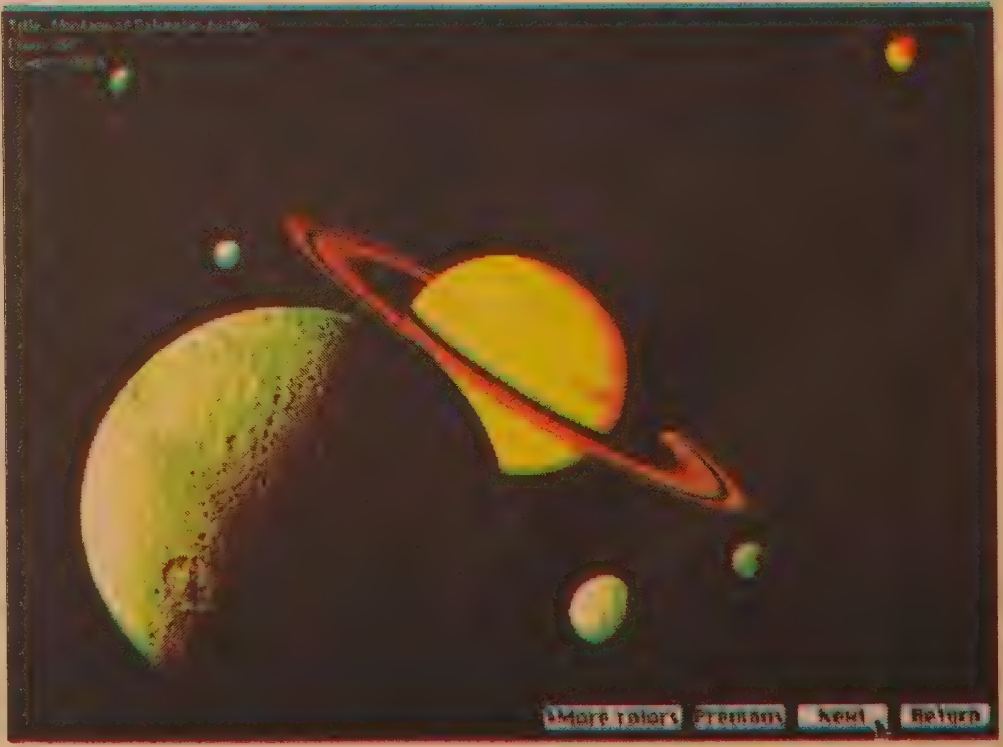
The interface design lets you see and browse through them all in the contexts of the year, from pre-1900 to 1993; the style, such as Cubist, Bay Area Figurative, Geometric Abstraction, and New York School; and the artists alphabetically. It isn't virtual reality yet, but accessing them this way reveals art as solid molecular clusters of thought, experience, and imagination.

STREET ATLAS USA

Another "must-have" is Street Atlas USA 2.0 ($169, Mac & Windows) from DeLorme. The Mac edition coincides with the update of the Windows version. Incredible as it may seem, on this one silvery wafer rests the data for more than twelve million street segments and more than one million lakes, ponds, rivers, parks, railroads, and monuments. "If a user printed out all of Street Atlas USA at the highest level of magnification," says DeLorme, "the finished map would cover more than 10 football fields."

The only lake I couldn't find was Lake Wobegon. But to my satisfaction I was able to range and zoom in on the very brief street of my family's house in a tiny coastal

RedShift gives you the controls to move around a photorealistic planet and its moons at different scales and speeds, and track it as it moves through its orbit. You can also record a QuickTime movie of your cruise for the folks back home.



RedShift Multimedia Astronomy

RESOURCES:

DeLorme Mapping
Lower Main St.
Freeport, ME
04032
1-800-452-5931

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Ste. #2
San Francisco, CA
94103
(415)241-1450

Maxis
2 Theatre Square,
Ste. 230
Orinda, CA 94563-3343
1-800-33-MAXIS

Microsoft Corp.
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486DX2-66 (NICE) (2 Slots Local Bus, 3 EISA, 2 ISA)	256K	$550	$693
486DX-50 (NICE) (2 Slots Local Bus, 3 EISA, 2 ISA)	256K	560	703
486DX-33 (NICE) (2 Slots Local Bus, 3 EISA, 2 ISA)	256K	435	600
ISA			
486DX2-66 (2 Local Bus)	256K	479	644
486DX-50 (2 Local Bus)	256K	489	654
486DX-33 (2 Local Bus)	256K	378	543

SYSTEMS		MB +CPU	BASIC SYSTEM
		AIR MB	
EISA/VESA			
486DX2-66 (AIR) (3 Slots Local Bus)	256K	$764	$929
486DX-50 (AIR) (3 Slots Local Bus)	256K	720	885
486DX-33 (AIR) (3 Slots Local Bus)	256K	585	750
ISA			
486DX2-66 (AIR) (3 Slots Local Bus)	256K	479	644
486DX-50 (AIR) (3 Slots Local Bus)	256K	489	654
486DX-33 (AIR) (3 Slots Local Bus)	256K	378	543

SYSTEMS		MB +CPU	BASIC SYSTEM
		GENOA MB	
486DX-50 (GENOA) (3 Slots Local Bus)	256K	$485	$630
486DX-33 (GENOA) (3 Slots Local Bus)	256K	359	524
486DX-50 (3 Slots Local Bus)	256K	465	610
486DX-33 (3 Slots Local Bus)	256K	339	484
486DX-50 (2 Slots Local Bus)	256K	465	610
386-40	128K	89	254

BASIC SYSTEM INCLUDES: 486/386/286 Motherboard • 486/386/286 CPU • 1 MB RAM • 101 Keyboard • 1.2 MB or 1.44 MB Floppy Drive
Baby AT or Mini Tower Case with Power Supply • 2FDD & 2HDD Controller Card w/Cable

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Medium Tower Case w/230W PS	58
Full Tower Case w/250W PS	78

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14" VGA Mono	87
14" Super VGA 1024x768 .39	177
14" Super VGA 1024x768 .28 Int	205
14" Super VGA 1024x768 .28 NI	215
14" Soco Super VGA 1024x768 .28 Int	215
14" ViewSonic 6E NI	267
15" ViewSonic	420
17" 1600x1280 .28	900

MOTHERBOARDS W/O CPU

EISA	
486DX2-66, DX-50, DX-33 (3 Slots Local Bus (AIR) w/256K)	$335
486DX-33/50 Mini EISA 256K (NICE) (2 Slots LB, 3 EISA, 5 ISA, Overdrive)	211
ISA	
GENOA	
486DX2-66/DX-50/DX-33 (3 Slots Local Bus (Genoa) w/256K	$107
486DX2-66, DX-50, DX-33 (3 Slots Local Bus (AIR) w/256K	119
486DX2-66/DX-50/DX-33 (2 Slots Local Bus, 2-72 Pin, 8-36 Pin Memory Slots) w/256K	110
486DX2-66/DX-50/DX-33 (Nice)	128
486DX2-66, DX-50, DX-33 (2 Slots Local Bus) w/256K	83
IBM	
IBM 486SLC2-66/64C VLB w/387-33 w/CPU VLB Motherboard	$250
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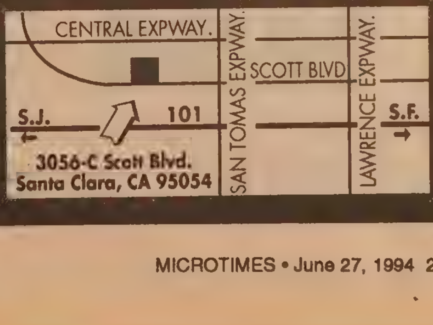

hamlet in Connecticut, with even the islands properly defined. I did find a local area in my San Francisco neighborhood that was awry. "Bernal Park" was substituted for Dolores Park, down the hill from the peak where it belongs. According to David Purcell of DeLorme, "The data is too big for there to be no mistakes ever. We encourage users to make a printout, mark the corrections, and send it to us. We are always updating."

You can search by place name, phone number, and zip code, and find the zips under your cursor. Find by street, and it marks the street on the map for you. Coupled with graphic programs and a laser printer, this could serve as an essential business tool. Even before you leave the office to go to a meeting at an unfamiliar site, you can whip out a customized route map in minutes. You can fax a map to a client showing her how to get to your office. Those idiosyncratic party maps, usually dashed off by confused temps, can be replaced with clear and accurate directions.

REDSHIFT MULTIMEDIA ASTRONOMY

There have always been some interesting computer programs on and for astronomy, such as TelStar, but now with the availability of CD-ROM, the sky really is the limit.

You can get the two-CD set of the Hubble Space Telescope Guide Star Catalog (Astronomical Society of the Pacific) to pinpoint the locations of fifteen million stars and other stellar stuff that would take a light year of floppies to contain. But a new CD-ROM with a rich trove of information that originated back in the USSR offers one of the best balances of hard data and visual delight. Maris Multimedia Ltd.'s Redshift Multimedia Astronomy ($99, Mac & Windows), distributed by Maxis, is a universal sightseeing tour, a desktop observatory, and a rocket scientist's lab.

It includes the *Penguin Dictionary of Astronomy* to help you navigate the astronomical infostream, and a well-designed manual on the hardcopy side. The library of seven hundred photos, which include many artists' impressions, are gorgeous images that let the universe speak for itself as well as be keenly interpreted. There is a handful of QuickTime movies, mostly from NASA. A proprietary celestial mechanics engine, programmed in C, plots the positions of stars, asteroids, comets, and deep sky objects, drawing upon a catalog of 250,000 stars and forty thousand deep sky objects.

The contributing Soviet scientists in their Space Mission Control enhanced JPL data programs to create a set of algorithms and an orbital mechanics engine to do the math and trig for you on the desktop. Complex operations such as filters, time, location, direction, and reports on visibility with altitude, Moon parameters, illumination, magnitude, diameter and angle for objects and planets can be

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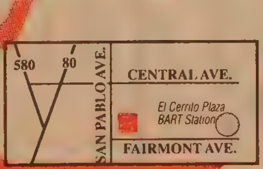

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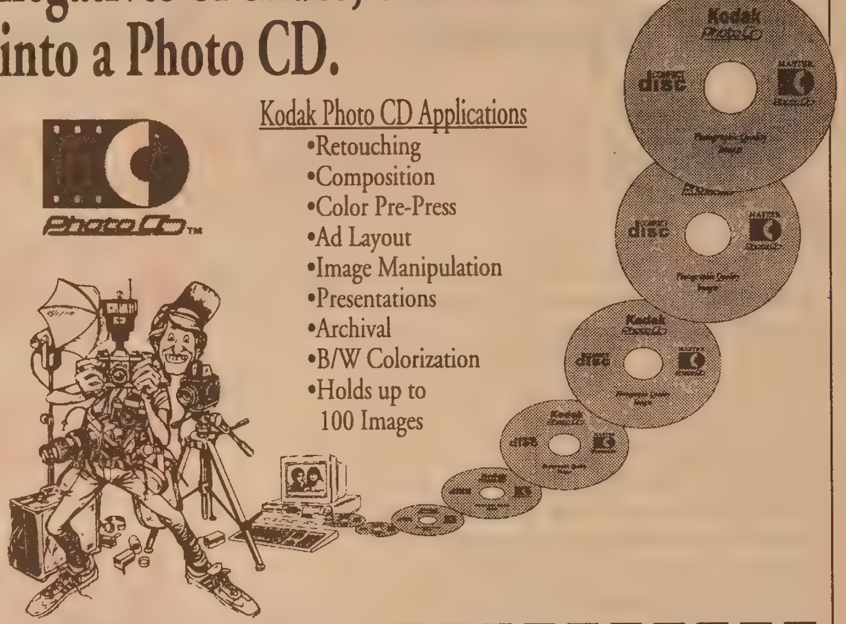

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A particularly impressive feature: RedShift gives you the controls to move around a photorealistic planet and its moons at different scales and speeds, and track it as it moves through its orbit. You can also record a QuickTime movie of your cruise for the folks back home.

For the developer or the multimedia artist, RedShift also offers the tantalizing possibility of a very cosmic clip art collection. However, like many CDs, the license does not give you overt permission to reuse the material in any way, so you must negotiate directly. If you want a source for just about every desktop computer program for astronomy, as well as way-cool posters and other materials, call the Astronomical Society of the Pacific Hotline (415/332-1244) and ask for their catalog. ■

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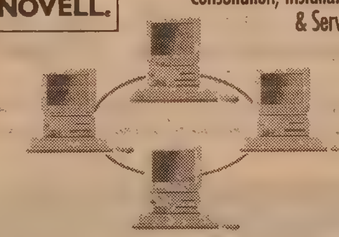

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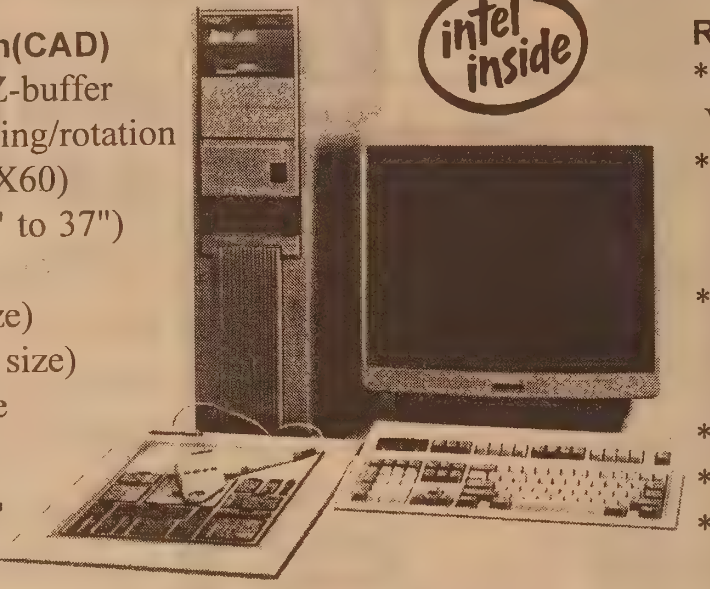

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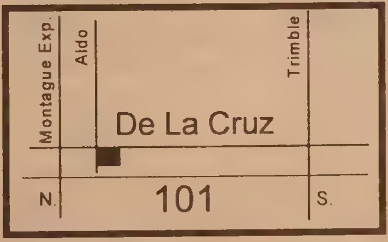

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Can The Amiga Survive?

As Commodore Faces A Bleak Future, The Amiga Community Holds Its Breath, Ponders Options

"*Commodore International Ltd., a once high-flying personal computer maker, warned that it is on the verge of collapse and could be liquidated unless it secures new funding.*"

That warning appeared in the March 25th issue of the Wall Street Journal and became reality a month later on April 29th. According to a press release, the company's assets will be transferred to trustees for the benefit of creditors, and its main subsidiary, Commodore Electronics Ltd., was placed into voluntary liquidation. This is the initial phase of an orderly liquidation of both companies, which are incorporated in the Bahamas, by the Bahamas Supreme Court.

The trustees are two partners from the accounting firm Deloitte & Touche, Franklin Wilson and MacGregor Robertson; however, they are acting in their individual capacity, not as representatives of D&T. As trustees they have a fiduciary responsibility to get the maximum possible for the company's assets. Creditors are first in line for any distributed funds, followed by the shareholders. However, Commodore is so insolvent, it seems highly unlikely stockholders will see anything.

Anyone who's shocked that Commodore folded hasn't been paying attention. Barring a miracle, this was inevitable. I'm only surprised that it took so long. I have felt for a long time that Commodore was incapable of properly marketing the Amiga and their window of opportunity had closed. It would have cost big bucks to crack that window open, and they just didn't have it. The final nail in the coffin was pounded in when an injunction was placed on Commodore for non-payment of patent royalties, restricting the importation and sale of Amigas in the U.S. (Note this doesn't affect any stock already in the distribution pipeline.)

NO WHITE KNIGHT

Commodore was desperately hoping a white knight would step in and save them. However, no one did. Not, probably, that no one was interested. After all,

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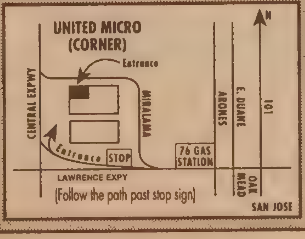

reportedly Hewlett-Packard recently agreed to license the Amiga chip set for a television set-top box. More likely, potential suitors probably felt that the debt was too great to justify a purchase, merger, or any other type of pre-bankruptcy salvation.

The major Amiga developers, who have a vested interest in the situation, couldn't afford the debt. Deeper-pocketed companies likely felt that the cost didn't justify the risk. They would be looking for a bigger market than Amiga developers and that would have been very expensive to develop.

IT'S NOT OVER TILL IT'S OVER

A liquidation sale will be the trustees' last option, so efforts to sell the company are still being made. Serious meetings with the giant Korean conglomerate Samsung have been reported. These talks have progressed to the point that Samsung has supposedly made physical site inspections of some of Commodore's worldwide operations. NewTek President Tim Jenison was reportedly also called in to make a pitch on what NewTek is currently doing and planning for the Amiga platform. It's a good sign that talks have reached such advanced stages, but signing on the dotted line may be a long way off, if it even happens.

Purchasing the technology in a liquidation sale is an entirely different ball game. The corporate debt and sales injunction should be non-issues. Of course, all things being equal, the asking price will be higher, since the assets will be acquired without Commodore's debt.

The danger of liquidation is the possibility that Commodore's assets might be sold piecemeal to various buyers with differing goals. The main asset that Amiga-survivalists will want is the Amiga technology. However, they will also want at least some of the manufacturing operations. There may be competing bids for these operations for just their intrinsic value.

SHORT-TERM PROGNOSIS

SMG, which is handling Commodore warranty and repair work, apparently has a reasonable inventory of parts, except for motherboards. Furthermore, the main Amiga distributor, Creative Equipment International (CEI), has optomistically indicated that it has "sufficient Amiga inventory to meet demand until manufacturing can be resumed." (Distributors are the companies that sell products to the dealers; CEI appears to be the only one with any Amiga inventory.) From what I can piece together, this is only Amiga 4000s and monitors. Also, many developers are coming forward to state their continued support for the platform.

Scala announced that they will be offering what they call a "Scala Workstation," an Amiga 4000 with Scala MM300. The 4000s will come from Europe; the company reports it has enough inventory to last through the end of the year. The machines will have the Scala name covering the Commodore Amiga name plate.

> **What if** a company that knows how to market a product **gains control** of the Amiga technology? That would be **very exciting** indeed, so stay tuned.

NewTek has yet to take an active stance on the matter other than to state their continued support for the platform. Demo units of the Flyer, a non-linear editing product, are still scheduled to be shipped in July with shipment to end users early in the fall.

These actions have bought the Amiga some time. It is way too early to jump ship now. However, things will have to move swiftly. The body isn't cold and people have already begun to pay their last respects to the Amiga. I encourage you to "look" at the other platforms, but it will only make you pray harder that the Amiga survives.

ON DECK

CEI has stated that it's been "working closely with Commodore management and major investors to find a resolution to the current financial crisis. Commodore's actions (declaring bankruptcy) now clear the way for progress to be made." Word has it that a core group of engineers is still employed at Commodore. Obviously this is being done to make it more attractive to someone interested in the technology—you can't have a *Jurassic Park 2* without Spielberg.

There's been a lot of speculation and rumors about various big companies being interested in the Amiga—Sony, H P, Epson, and even Philips. I honestly doubt that we'll see an Amiga with any of those names on it. As far as supporting a third computer platform is concerned, except for Philips, they probably realize that Windows-based PCs already have a stranglehold on the market. Philips has spent so much money hyping CD-I, I doubt they would be eager to adopt a totally incompatible format.

It does not appear that any single Amiga developer, like NewTek, Scala, or GVP, will be coming to the rescue either. However, perhaps a group of developers could pull it off. Moreover, I have it on good authority that at least two non-developer parties (not previously mentioned) are itching to step in and take over Amiga manufacturing, if either can get the rights to the technology!

There are rumors that all of this may be part of a plan for the current Commodore management to restructure and get out from under the debt. This is doubtful.

WHAT IF

Commodore really only had three main products that it actually manufactured: the Amiga 4000, 1200, and CD32. If Amiga operations are salvaged, I expect to see scaled-down and streamlined operations that may emphasize, if not concentrate solely, on the 4000. The 1200 and CD32 are low profit-margin mass market products and thus require substantial promotion to market properly. Unless the new owner has deep pockets, limited resources would be best served with the more profitable

4000 line, including the tower and economy versions.

It is important to recognize that the Amiga technology should also include products in development, not just shipping products. The next generation AAA chip set was very close to being ready back in January. Initially, whoever takes control of the Amiga will have to concentrate on current products. However, development and release of more powerful Amigas is important if the Amiga is to prosper long-term.

If the Amiga does survive, I'd forget any dreams of it becoming a mainstream or general purpose computer. It's a niche computer and most likely will stay that way. Every platform has its forte and the Amiga's just happens to be video, which has a narrow market—albeit a potentially profitable one. Sure Excel, Word, or Lotus 1-2-3 would run great on an Amiga, but PCs are just so darn cheap that it makes no sense for the major PC developers to port their wares to the Amiga. With the Mac, PowerMac, OS2, and Windows NT/4.0/3.1, a lot of developers are already supporting too many OSs. Besides, most serious professionals probably already have a PC or Mac. (This should be good for the handful of developers who market Amiga productivity applications though.)

There has been some talk about rewriting the Amiga OS so that it would run on something like the PowerMac or be totally hardware independent. How compatible this OS would be with current software is unknown. In recent years, Commodore had gone to great lengths to get developers to use standard system calls in writing their applications instead of "banging" the hardware with custom routines. Software that adhered to the rules would have a much higher chance of not breaking on the ported OS.

This would be quite an undertaking, but there are a lot of devoted Amiga owners out there. Many of them are ex-Commodore R&D people who know a lot about the nuts and bolts of the OS. Of course, hardware developers would have to rework their boards so they will physically plug into whatever machine the OS runs on.

AMIGA ALTERNATIVES

I've looked and I'm really having a hard time embracing either of the two major platforms, namely Windows and Macintosh. I really like the Mac since it is the closest kin to the Amiga. However, although Apple has reduced the price of their machines, I find that the peripherals and software continue to be expensive. I also really worry about Apple's long-term future: can it withstand the Windows tidal wave? It's getting worse with flagship Mac applications being ported to the Windows platform.

Sure, the new PowerMacs can run Windows, but this software-only emulation is an added cost, requires 16MB of RAM, and is too slow for serious users. It's not surprising that Windows emulation is slow, considering Windows runs pretty slow even

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on the real McCoy. Hardware emulation—which has been done—is the only way to get acceptable performance, but that route is expensive and PCs are just too cheap.

However, although a Windows PC may be very affordable, you still have to wrestle with multiple hardware standards, incompatibilities from manufacturer to manufacturer, and the list goes on—it's ridiculous!

> I encourage you to "look" at the other platforms, but it will only make you pray harder that the Amiga survives.

The next version of Windows (code-named Chicago) is due out late this year and has a list of features that reads like an AmigaDOS manual (e.g., preemptive multitasking and a GUI that is tied to the file directory structure). Plug-and-play expansion is also coming. So Windows might eventually turn into a decent OS, but I'm not holding my breath.

If efforts to revive the Amiga fail, it still has enough life to wait and see how the Windows-Mac war progresses. If I'm forced to convert, I'm going with the favorite (cursing at every turn, of course).

SUMMARY

Eventually—and maybe even by the time you read this—all will be known and I may look like a prophet or a fool. However, as of now, the Amiga is not dead and there is room for hope.

The demise of Commodore may eventually turn out to be a good thing. It was time for Commodore to be put to pasture or hand the reins over to someone else. What if a company that knows how to market a product gains control of the Amiga technology? That would be very exciting indeed, so stay tuned. The final chapter of the Amiga may not have been written yet. In fact, this just may be the first chapter of the sequel! ■

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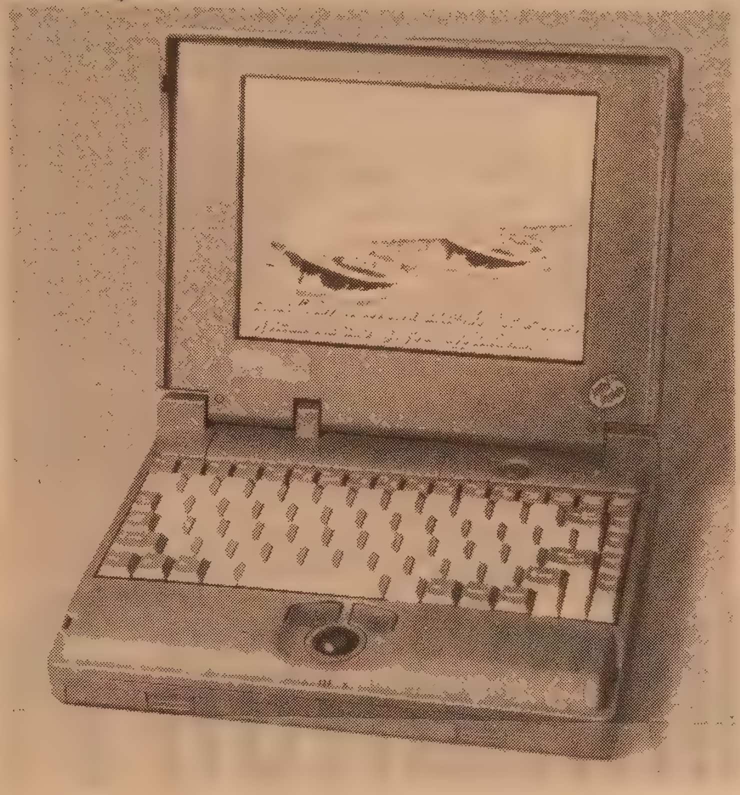

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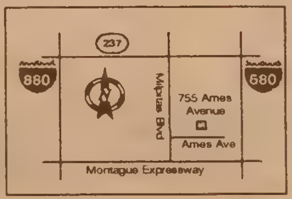

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An Animation Primer

As The Worlds Of Traditional And Computer-Generated Animation Collide, New Animation Technology Is Being Created

The craft that the major studio animators at Disney, Warner Brothers, and Hanna-Barbera honed and perfected for over forty years can offer clues to making good computer-generated animation. Having desktop publishing tools did not magically make everyone a designer any more than the ability to simply make things move can make anyone an animator. With more authoring and presentation software packages offering animation capabilities, and more animation packages allowing you to export animation files, it's important to understand the basics.

Sadly, the recent death of Woody Woodpecker's creator, Walter Lanz, signals that the end of an era is imminent: Multimedia is edging its way in as the vehicle of the new genre of animation. This crossover and merging of the two worlds of traditional and computer-generated animation is spawning a new animation technology. IF/X Studios in collaboration with the Time-Warner Interactive Group is currently in production on an innovative, animated CD-ROM version of the children's classic tale, Peter and the Wolf. Chuck Jones, famous for his versions of Bugs Bunny and Daffy Duck, creator of Road Runner and the recent animated intro to the movie *Mrs. Doubtfire*, is designing the characters for this interactive CD-ROM. Peter and the Wolf's producer George Daugherty says, "We are trying to bring the artistic, creative genius that has always applied to the great animation directors and that sense of creative explosion, to the interactive medium which to date has too often been technologically driven, rather than creatively and artistically driven."

THE PRODUCTION PROCESS

Making an animation involves the standard steps of writing a script, carrying it through concept, storyboarding, and editing, to the final piece.

In traditional animation, after the concept is scripted and storyboarded, pencil drawings are made of the extreme positions while looking through a light table to the previous "key" positions. Assistants, (inbetweeners) then draw the in-between poses. By flipping through the set of rough pencil drawings the movement is tested. These are called the pencil test.

BY PAMELA MASON

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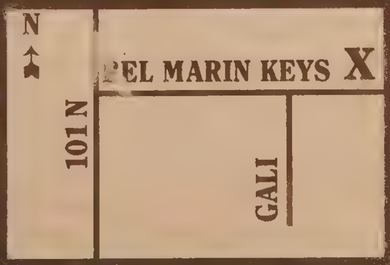

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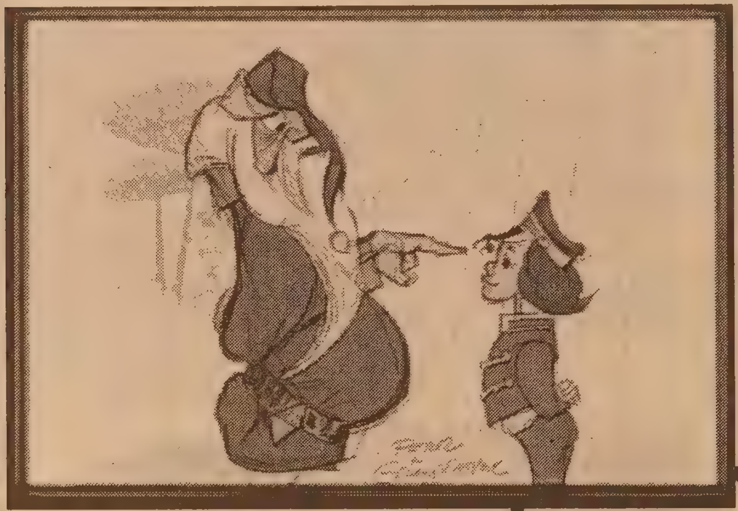
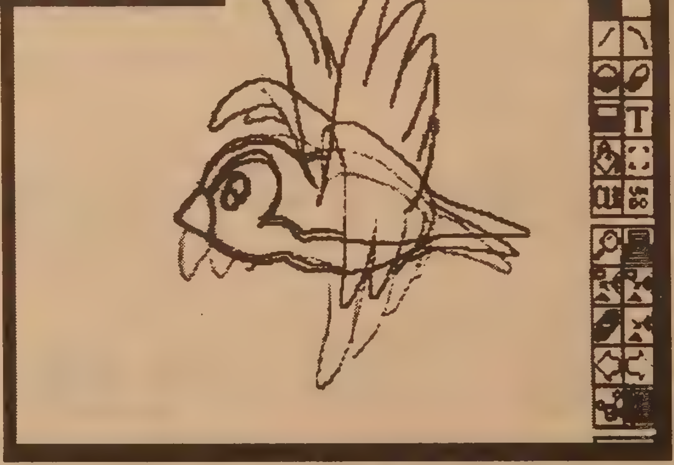
The pencil drawings capture the spontaneity, life, and essence of an image, rather than the craft. The technique of looking through the cels to the other poses is called the onion skin effect. The next step is for a cleanup artist to take these vibrant drawings and make the lines crisp and even before they are transferred to cels, or "inked." The inked cels are then painted with opaque paint on the back to avoid any visible brush strokes. In the Peter and the Wolf production, Chuck Jones designed the characters and the key poses. Digital animators then worked from these to create computer-generated animation. Pencil drawings were scanned into the computer and then digital ink and paint were applied.

Bill Kroyer, animation director of *Tron*, *Ferngully*, and other animated productions, points out that "even with the studios switching over to computer animation, artists will still draw on paper, because the artist must still work by hand. This is especially true of character animation. They can then digitally scan the drawings into the computer and the characters can be enhanced, as in the willoughby's stampede in *The Lion King*, where they are reproduced and multiplied by the hundreds."





Left: Peter and the Wolf captures the look and feel of traditional animation on an interactive CD-ROM. Courtesy IF/Xinteractive

Below: The traditional onion skin technique. Courtesy Disney Software

The next step in traditional animation would be photographing the cels on top of painted backgrounds called mattes. An example of the use of mattes is in the movie *The Jungle Book*. The jungle is a series of background paintings over which the cels of the characters, such as Mowgli and Kai, move as separate entities. The mattes lend a strong sense of realism to the animation because they were made in the traditional manner—by fine artists with paint! In computer animation, Fractal Design Painter and other sophisticated, often proprietary, paint packages can be used to create images that are pulled in as backgrounds. Finally, in traditional animation, a soundtrack of voices or music is added using an exposure sheet as a guide for synchronization. Sound board or MIDI files can be attached to the computer-generated animations.

Traditionally, the final piece was photographed at a rate of twenty-four frames per second onto film. The computer-generated final piece is often in the form of software or a CD-ROM that is either displayed on the computer terminal or output to videotape at the rate of thirty frames per second. The computer animation can be viewed by means of a standalone player for animation files. The industry de facto standard is Autodesk's AAPLAY for playing "flics." This player visually resembles a tape deck with familiar play, stop, fast forward, and rewind functions.

TYPES OF ANIMATION

Let's begin by looking at some of the different types of animation. Traditional cel animation, or frame-by-frame animation, is based on something called persistence of vision. This is the principle that if you put a series of still pictures in sequence, with each varying slightly, and then move them fast enough, the eye will see movement. This is the basic flip book theory in action. The term "cel" refers to celluloid, the clear material originally used to make the individual sheets of an animation. The computer analogy for a cel is the computer screen with a still image displayed on it. The computer has the ability to computationally "flip" the images on the screen, by means of software and a technique called key-framing. Computer key-framing is a term derived from traditional animation's key frames, or poses.

Disney Animation Studio is a commercial software package that closely emulates the traditional animation process. It even includes a "morgue" of old animations, which is what the cartoon studio animators called where all the old drawings and cartoons were kept.

Object animation is the movement of an object within a frame or cel. Some object animation transformations include movement, rotation, and scaling. Movement is the straight movement of an object, from point A to point B. By rotating an object you can create the illusion of spinning. Scaling allows you to adjust the size of the object, or create the illusion of depth, by making far away objects smaller and closer objects larger. Maintaining the same proportions of an object as it is scaled is the aspect ratio. If you modify an object in only one dimension (width or height), it gives the image a stretched or squashed look.

SLIDE SHOWS AND EXPLODED VIEWS

One common use for object animation methods is in the bread and butter of current multimedia presentations: the slide show. Slide shows are created using presentation or authoring packages and are used in business, marketing, and educational applications. Using slide templates, or individual screens, you have a set of fixed element placeholders for things like the company logo, horizontal rules, and bulleted lists that you can modify with your own text and graphics. Objects such as products can be animated or made to fly by. Charts and graphs can be made to grow and shrink to show profits or trends. Transitions for moving from one slide to the next in a slide show, such as fades, wipes,

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Disney Animation Studio for PC, Amiga
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Fractal Design Painter for Mac, PC
Fractal Design, Inc.
(408)688-8800

Morph for Mac, PC
Gryphon, Inc.
(619)536-8815

and dissolves, are also animation techniques. Autodesk Animator Pro is an excellent 2-D animation package for the PC, as it offers the ability to create slide shows that play back in the flic file format, as well as transparency editing and many transformation and object animation capabilities.

Another practical piece to insert into a multimedia or educational presentation is a computer-generated parts blowout animation. These can show an exploded view, or via transparency, anything that is encased and cannot be seen, like the internal working parts of an engine. This is where animation is an invaluable resource for teaching and clarifying concepts. It can make what can't be seen visible, and therefore is frequently used in scientific visualization applications.

2-D AND 3-D ANIMATION

Two-dimensional animation is flat, planar, with only illusory depth. It is created with just width and height (the X and Y axis). Traditional cartoons are an example of 2-D animation. In order to change a view of an object in 2-D, a whole new drawing must be made showing that new angle. Depth is a trick created by layering levels of transparency such as backgrounds with cels on top of them, or it can be achieved by means of perspective drawing or backgrounds that are painted in such a way as to appear to have depth, but are really still only two-dimensional. The one way mechanically that depth is created in the cartoon world is by means of the multiplane camera, a special camera that physically separates the layers by distance. This is, however, quite different from creating the depth from within the drawing itself, as is done in 3-D computer animation.

> HAVING DESKTOP PUBLISHING TOOLS DID NOT MAGICALLY MAKE EVERYONE A DESIGNER ANY MORE THAN THE ABILITY TO SIMPLY MAKE THINGS MOVE CAN MAKE ANYONE AN ANIMATOR.

In 3-D computer animation, objects are animated in what appears to be an actual environment; a three-dimensional space (using the X, Y, and Z axes). The objects are models that have height, width, and depth and can be dynamically viewed via a virtual camera that can rotate around the object in this space and then, from any angle, take a 2-D snapshot of that view. (Remember that in 2-D to get this type of view the object would have to be completely redrawn.)

The predecessor of 3-D animation is puppet animation. Puppets were built of wire armatures covered with plaster and cloth and real world materials, then filmed in stop-action, frame by frame. Tim Burton's movie, *The Nightmare Before Christmas*, uses this traditional technique. It is extraordinarily labor intensive to produce this type of animation, but the resulting film often has a special charm. In annual animation festivals it is clear that Eastern European animators, with less access to computer equipment, still produce many interesting pieces using this method.

Two important distinctions in 3-D animation packages are the differences between polygonal-based and spline-based object modeling. Polygonal-based software is best suited for building geometric, mechanical objects, while spline-based packages are

GLOSSARY OF TRADITIONAL ANIMATION TERMS

CEL: an image inked and painted on acetate that is part of a series of cels that make up an animation.

CEL PAINTER: the person who paints the back side of the inked cels.

CLEANUP ARTIST: the person who takes the rough pencil test drawings and cleans them up, makes the lines even and crisp.

INBETWEENER: the person who draws the inbetween poses from the animator's key, or extreme poses.

PENCIL TEST: the initial drawings of an animation that are flipped through to test the motion of an animation.

ONION SKIN EFFECT: the ability to see through to the other cels in a stack of layered cels. The first cel is darkest, and the cels underneath are lighter. This technique helps the animator to position objects very accurately.

GLOSSARY OF COMPUTER-GENERATED ANIMATION TERMS

KEY-FRAME: animation method on the computer based on the traditional cel animation method of drawing key or extreme poses. The computer is the equivalent of the inbetweener, and instead of manually drawing the in-between poses, or tweens, calculates them.

RENDERING: the process of taking a geometric model or object with lights, a camera view, and other information for describing the objects visually, and computing a final image.

MODEL: the 3-D object created via modeling techniques that has the properties of being three dimensional in the computer environment. It has apparent volume and can be viewed dynamically from different angles.

SURFACE-MAPPING: applying a surface and colors to an object. Imagine a colorful decal being stuck on a sphere, for example.

POLYGONAL-BASED: models built with series of connected vertices. These models have, due to the vertices' edges, a jagged profile.

SPLINE-BASED: models made with smooth curves that do not have the jagged edges found in polygonal models. (There are many other differences between polygonal and spline-based modeling, as these are complex methods, but this is one basic difference.)

KINEMATICS: the mathematics and science of creating motion in computer graphics animation.

WIRE-FRAME: a see-through model that is shown by all its contour lines that are thin like wire.

WIRE MESH: a see-through polygonal model made up of contour lines filled in with lots of connected little triangles that resemble mesh.

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best for the organic. One high-end polygonal package for the PC that has superb rendering capabilities is Autodesk's 3D Studio. Much of the polygonal world of 3-D computer graphics terminology evolved from the industrial world of CAD drafting and engineering. Terms like extrude, lathe, and chamfer, originally used to describe functions for creating mechanical parts, are now part of the language for modeling parts in many polygonal based 3-D animation packages. Spline- or patch-based models create smoothly surfaced models and employ a technique better suited for natural shapes. Hash Inc.'s Playmation and Animation Master programs are spline-based and have their roots in Will Vinton's Claymation techniques. "The advantage of spline-based modeling is that when joints bend, the skin on the elbow joint, for example, bends smoothly, whereas in polygonal-based modeling packages, the movement is broken up into seams, and artifacts are formed where the edges meet," says Martin Hash of Playmation about the advantage of Playmation's spline-based technology. Their models also utilize spines (like a skeletal spine), which is the equivalent of bending a wire armature in the clay or puppet models. Remember how Gumby and Pokey's limbs bent? Spline-based packages like Playmation offer a more natural metaphor for the creation of organic shapes than polygonal packages which generally use the machine tools approach to model-making. Organic shapes can be made in polygonal packages, it's just usually more difficult and not as intuitive as using splines.

3D slide-dinosaur. Courtesy Playmation, Hash Inc.

LIGHTS, CAMERA, ACTION!

In 3-D animation, wire frame or mesh objects are built first, then materials such as glass, plastic, or metal and colors are applied to the objects (surface-mapping). Add lights to create shadow and highlights and a camera to view the objects. Next, each image in the animation sequence is rendered with all this information, and output to a file that can be played back.

MORPHING AND WARPING

Morphing and warping are probably the most popular animation tricks around right now. Warping is the distortion of just one object's features while morphing usually involves changing one object into another completely different object. Morphing actually combines warping with a fade or dissolve. Besides all the obvious places like music videos and commercials, morphing is popular in multimedia marketing applications for turning one product into another, and warping is often used to change an old set of features on a product model into a new set. One morphing software product is Gryphon Morph for either the Mac or PC.

CHARACTER ANIMATION

Character animation is what the magic of cartoon animation is all about—bringing inanimate characters to life. Martin Hash of Playmation defines character animation as the ability to create characters that "can act and show empathy and emotion." Two-dimensional character animation has long been the domain of traditional cartoon animators, but this is beginning to change. Playmation is an example of a software package for the microcomputer platform that is specifically designed for 3-D character animation.

ANTICIPATION, SQUASH AND STRETCH, AND EXAGGERATION

Some classic cartoon methods can be used to create more effective computer animations.

- Anticipation—Once the character begins to move, move it in anticipation first, that is, move it in the opposite direction than the one it is going to go in; anticipating going forward by going backward first, then fully carry through the forward motion.
- Squash and stretch—You can use scaling to distort the object or character while it is in motion, to make your character more elastic and less mechanical. For example, a bouncing ball will hit the ground and squash, then resume its shape on the rebound, shrinking again in height as it falls.
- Foreshortening and exaggerating proportion also help to emphasize a character and make movements more quickly and readily identifiable, because when objects close up are made larger than life they have more impact.

Clearly, the art of making animation by either traditional or computer graphics methods, whether 2-D or 3-D, is multifaceted. The field is in its infancy in the computer realm, particularly development on the PC and Mac platforms. As the shift from traditional to computer methods takes place, and their styles and creation methods merge, there will be a myriad of areas in which the technology will grow; areas such as kinematics, collision detection, and advanced motion control. In the field of computer animation there is a great deal of crossover of styles and influence from many disciplines—from mechanical engineering, cartoons, and sculpture, to puppeteering and Claymation. It will be just as interesting to watch the evolution of the new animation technology, of the art and images produced with the new hybrid tools. George Daugherty, producer of the Peter and the Wolf CD-ROM, states, "In a lot of cases we've had to invent our technology. There is an incredible spirit of adventure as we are constantly challenged to overcome limited technology." He adds, "The traditional artist and the technologist must work together to overcome the limitations imposed by each medium." ■

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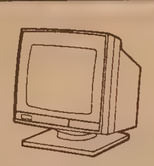

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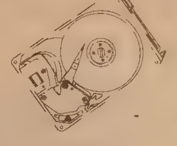

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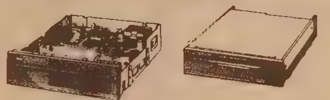

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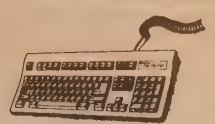

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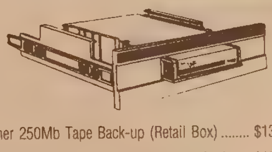

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SimCity...continued from page 130

effects of a massive hurricane? Or rescue San Francisco after the Big One?

If you enjoy the built-in scenarios that come with SimCity 2000, you'll also enjoy these. They're just as good, although more challenging, frustrating, and (possibly) more fun than the originals. With each scenario, you have a certain amount of time to negate the effects of the disaster and make things right in your city—lest you be run out of town. Unlike the scenarios that come with SimCity 2000, all of these disasters befall real-life cities. The on-screen cities look eerily like their real-world counterparts, with landmarks duly labeled.

For your bookshelf, there's *SimCity 2000: Power, Politics, and Planning* by Nick Dargahi and Michael Bremer. This 400-page book is a wonderful source of inside information about the game. You can read zillions of handy tips and tricks from those who have created successful cities and from the programmers themselves. It's well written, fun to read, and covers the Mac and Windows versions of the game.

The book is part how-to guide (explaining the basics of play and how to use the program's tools) and part interview. The interview portions are questions and answer sessions with the development team (including the artists, musicians, programmers, and beta testers) as well as folks who have created enviable cities. (Naturally, they give copious tips and relate the problems of stuffing six million Sims into one simulated city.)

The book also includes a complete list of "Easter eggs" (hidden tricks) in the game. You can find out how to embezzle $50,000 of quick cash or use a "magic eraser" to chop off parts of buildings. Unfortunately, some of the tricks may spoil the game's challenge if you can't control your urge to, for instance, type a secret code to grab a few thousand extra bucks.

There's also a detailed look at how the program "thinks." By knowing what the program looks for, you can optimize the way you play the game. The book covers it all—the models used for power, population, health, education, plus the effects of City Ordinances. Ever wonder if that annual carnival or nuclear-free designation is really worth it?

Another chapter focuses on how to beat the game's built-in scenarios. Once again, this is useful stuff, but use these tips judiciously, or you'll spoil your fun. Another chapter gives tips on recreating real-life cities from maps. (Cool, if you have the time and patience.)

There's much more to the book—and the game—than can be related here. You can find out how the game's newspapers work, see the "lost arcology" (a building that was designed but never made it into the game), and view the Sydney Opera House (which is only in the Australian version of SimCity 2000). This book won't disappoint true fans of SimCity. ■

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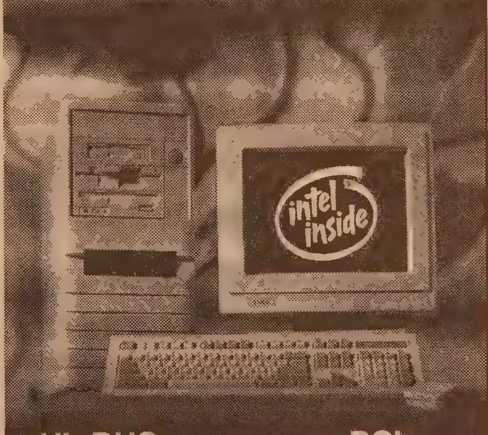

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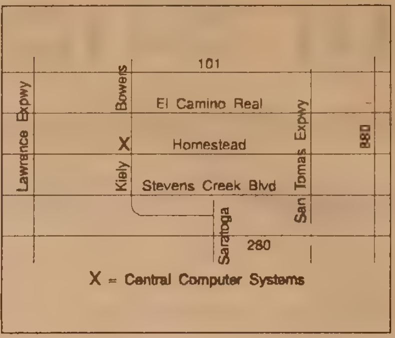

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- 3 half ht or 1 full & 1 half ht for PC, 60W	109
- 3 half ht or 1 full & 1 half ht for Mac,w.cables	129

3. CONTROLLER

ADAPTEC

1522A Fast SCSI w. Kit, 3Mb/s	145
1542CF SCSI 10Mb/s / w. Kit	175/239
2742T SCSI EISA w. Kit	365
2842VL SCSI VLB / w. Kit	235/245
2940 PCI SCSI w. Kit	279
ASW-1440 ASPI Netware Manager v3.3	65
ASW-310 Sy-Tos Plus (tape backup s/w)	*(85)99
ASW-EZ SCSI for Dos & Windows	69

BUSLOGIC

BT 445S SCSI VLB w. Kit	235
KT 542B SCSI-2 w. Kit	199
KT 545S Fast SCSI-2 w. Kit, 10Mb/s	209
KT 747S Fast SCSI-2 EISA w. Kit	365
KT 946C SCSI PCI w. Kit (supports 8GB HD)	249

COREL

Corel SCSI Software v1.2 / v2.0	69/89
Corel SCSI CD Power	69

DTC

2278VL 32 bit, IDE w. I/O	39
3280AS SCSI	105

FUTURE DOMAIN (SCSI)

TMC-1660 for AT (HD only) / SVP	119/127
TMC-1680 for AT, 15Mb/s, (4F&H)	129
TMC-1680 SVP (SCSI Value Pack)	145
TMC-3260 PCI / SVP	129/165

KOUWELL

IDE Controller only	27
IDE w. AT I/O (2S 1P 1G)	34
IDE w. AT I/O (2S 1P 1G) w. 16550 chips	49
IDE w. AT I/O (2S 1P 1G) w. 16550 & 2.88	59
IDE w. AT I/O (2S 1P 1G) VLB	49
IDE w. AT I/O (2S 1P 1G) VLB w. 16550 chips	69

PROMISE (drive cache)

DC-200 IDE cache up to 16MB	95
DC-420 IDE VLB w. 512k cache up to 1MB	109
DC-4030VL IDE VLB cache up to 16MB	125
DC-2040 Bios Chips & CD Driver	15

QLOGIC

Fast SCSI ISA w. Kit	125
Fast SCSI EISA w. Kit	199
Fast SCSI VLB w. Kit	189
Fast SCSI PCI w. Kit	299

ULTRASTOR (w/o cable)

ULT15C IDE cache	145

VITEX

IDE w. I/O (2S 1P) VLB	45
IDE w. 4FD/ 2S 1P/ 16550 chips	49
IDE w. 4FD/ 4S 2P 1G/ 2S16550/ VLB	89

WONDER SYSTEMS (USA made)

IDE w. 4FD/ 2.88MB/ drivers tape, 1.0 Mbps FD speed	35
SCSI w. CD Rom drivers	49
VL2000 IDE VLB w. AT I/O	45
VL2018 IDE VLB w. 2HD/ 4FD/ 2S 1P/ 16550 chips/ 2.88MB	69

OTHERS

BOCA IDE w. (2S 1P)	49
PCI SC200 SCSI-2 (NCR chip)	99
PTI 227 IDE w. I/O	19.50

4. CPU & MATH CO

CPU :

AMD

386 DX-40	59
486-DX2-66	289

INTEL

386 DX-33 / 40	49/49
486 DX-33	259
486 DX-50	389
486 DX2-50	309
486-DX2-66	379
Pentium 586-60	679
Pentium 586-66	749
Pentium 586-90	919

Math Co Processor :

CYRIX

83D86 - 33	39.50
83D87 - 40	39.50
Cx486 DLC TI-33	75
Cx486 DLC TI-40	85

INTEL

387 DX (for 16 / 20 / 25 / 33 MHz)	85
387 SX (for 16 / 20 / 25 / 33 MHz)	79

OTHERS

Cooling Fan for 486 CPU	9
Cooling Fan for Pentium 586	15

5. DIGITIZER

SUMMASKETCH

III 12 x 12, 4 or 16 button	269
III 12 x 18, 4 or 16 button	549

WACOM

UD-0608R 6 x 8, UP-201 Pressure Stylus	345
UD-1212RP 12 x 12, UP-201 Pres. Stylus	529

*(price) .... special, while supply last

6. DRIVE

FLOPPY DRIVES :

MICRO SOLUTIONS (external)

1.2 / 1.44 (use printer port)	149

SYQUEST (removable)

88MB 5.25" w. 88MB cartridge for Mac, Ext	439
105MB 5.25" w. cartridge for Mac,Ext,SCSI	399
105MB 3.5" w. cart., printer port for PC, Ext	399
105MB 3.5" w. cart., IDE host adapter	299
270MB 3.5" w. cartridge, IDE, Int	499
270MB 3.5" w. cartridge, SCSI, Ext	549
270MB 3.5" w. cart., printer port for PC, Ext	549
105MB Cartridge	59
270MB Cartridge	89

TEAC

1.2MB 5.25"	47
1.44MB 3.5" / w. frame	37/41
2.88MB 3.5" w. frame	85
Dual - 1.2MB & 1.44MB	99

HARD DRIVES :

CONNER

CFS-210A 213MB 14ms IDE 1" ht	185
CFA-340S 340MB SCSI	269
CFS-420A 420MB 14ms IDE 1" ht	259
CFA-540A 540MB 12ms 256k IDE 1" ht	335
CFP1060S 1.06GB 10ms 256k SCSI	689

FUJITSU (5 yr. warranty fr. Fujitsu)

M2694ESA 1.0GB 10ms SCSI-2 3.5" 1/2 ht	725

MAXTOR

MXT-7171A 170MB 15ms IDE 3.5"	185
MXT-7290S 290MB 14ms 64k SCSI	259
LXT-7345A 345MB 14ms 64k IDE 3.5"	245
MXT-7345S 345MB 15ms SCSI 1" ht	299
MXT-540A 540MB 8.5ms 256k IDE 1" ht	369
MXT-540SL 540MB 8.5ms 256k SCSI-2 1" ht	439
MXT-1240S 1.2GB 8.5ms 256k SCSI-2 3.5"	995
Optical Rewritable 1.3GB 19ms SCSI, 4MB Ext	
Tahiti III w. Adaptec 1542 & Plastic Cart	2545
1GB Glass Cartridge	165
1GB Plastic Cartridge	135

MICROPOLIS

MC4110A 1.0GB 8.5ms 512k IDE 1/2ht	749
MC4110 1.0GB 8.5ms 512k SCSI-2 1"ht	749
MC2117A 1.75GB 10ms 512k IDE 1/2 ht	975
MC2117 1.75GB 10ms 512k SCS-2 1/2ht	1085
MC1926 2.1GB 13ms 512k SCSI-2 full ht.	1435
MC1936 3.0GB 11ms 256k SCSI full ht	2095

QUANTUM

EIS-170AT 170MB 128k IDE	179
LPS-270AT 270MB 12ms 128k IDE	219
LPS-340AT 344MB 12ms 128k IDE	255
LPS-340S 344MB 12ms 128k SCSI	279
LPS-525AT 525MB 10ms 512k IDE	369
LPS-540S 540MB 12ms 128k SCSI	389
EP-1080S 1.08GB 9.5ms SCSI-2	699
PRO-1225S 1.2GB 10ms 512k SCSI-2	899

SEAGATE

ST3243A 214MB 16ms 32k IDE	205
ST3290A 261MB 16ms 64k IDE	219
ST3391A 341MB 12ms 256k IDE	265
ST3655A 545MB 12ms 256k IDE	389
ST3600N 525MB 10ms 256k SCSI-2	399
ST31200N 1.05GB 9ms 256k SCSI-2	769
ST12550N 2.14GB 8ms 1M SCSI-2	1685
ST43400N 2.9GB 10ms 512k SCSI-2	2035

OTHERS

Impression CardDrive (2 slot PCMCIA)	185
Mounting Frame for 3.5" Hard / Floppy Drive	6
Removable Case for 3.5" HD IDE	39
Removable Case for 3.5" HD SCSI	42

7. I/O CARD

BOCA (fast chip serial)

Bocaboard w. cable (IRQ 3,4,5,7,10,11,12,15)	
- 4 port / 8 port / 16 port	79/119/239

KOUWELL

AT I/O (2S 1P) / AT I/O (2S 2P)	27/33
AT I/O (2S 1P 1G)	27
AT I/O (2S 1P 1G) w. NS16550 chips	49
AT I/O (2S 1P 1G) w. IDE controller	34
4 Serial Ports	55
Printer Card (1P)	15
Serial Card (XT, AT)	15

QUICKPATH

13 Port I/O w. 4-16550UARTs + Extd. IRQs (2IDE, 4F, 4S, 2P, 1G)	125
4 Serial, 16550UARTs, 8addr, 10IRQs (3,4,5,7,9,10,11,12,14,15)	99

SIIG (5 yr. warranty)

(2S 1P) w. 16550 chipset	49

STB 4-COM

4 Serial, 16 bit, w. 16554, support Com 1-8, IRQ (2,3,4,5,10,11,12,15)	109

VITEX

AT I/O (2S 2P) w. 16550 chips	45

8. KEYBOARD

ANCER (black)

101 Key	42

FOCUS

FK2001 101 Click	42
FK9000 129 Key Programmable	59

NORTHGATE OMNI

101NI	69
102	69
Ultra T	95

SIIG (5 yr. warranty fr. SIIG)

Suntouch Jr. 84 Key Mini	45
Supertouch 101 Click	53
Wave Touch 101 Soft	39

OTHERS

BTC 84 Key Mini	37
Keycat II 101 w. trackball mouse	65
Keytronic 101	37
Maxi 101	35
Maxi Key 124	59
Mitsumi 101	30
PT505C 101	25

9. MEMORY

DRAM

1MB x 1 - 80ns	6.20
256K x 4 - 80ns	5.50

SIMM

1MB x 9 - 60ns / 70ns / 80ns (3 chips)	40/39/38
4MB x 9 - 60ns / 70ns	155/147
16MB x 9 - 70ns	779
256K x 9 - 70ns / 80ns	14/13
1MB x 36 - 60ns / 70ns	175/165
4MB x 36 - 60ns / 70ns	679/669
2MB x 36 - 70ns	330
8MB x 36 - 70ns	1280
Simm Mac: 4MB x 8 - 70ns / 80ns	159/155

SIPP

1MB x 9 - 70ns (3 chips)	41

COMPUTER MEMORY (3rd Party)

Compaq	
for Deskpro 386N	
- 2MB /4MB /8MB	109/199/369
for Deskpro 386SX20	
- 2MB / 4MB / 8MB	109/159/319
for Deskpro 386-20e/ 20/ 25e - 4MB	225
for Deskpro 486M	
- 2MB / 4MB / 8MB	109/199/369
for LTE 286	
- 2MB / 4MB	129/195
for LTE 386S-20 - 4MB	239
for SLT 286	
- 1MB / 4MB	99/259
for Prolinea 386-25ZS/ 25S	
- 2MB / 8MB	105/379
for ProLinea 486-33/ 50/ 25S	
- 4MB / 16MB	175/639
IBM	
for PS/2 50Z/ 55SX/ 65SX/ 70	
- 2MB / 4MB	129/229
for PS/2 80-111/ 311/ 121/ 321 - 4MB	225
for PS/2 80-A21/ A31/ A6 - 4MB	229

KINGSTON MEMORY

current price	call

LAPTOP / NOTEBOOK (3rd Party)

AST for Exec - 4MB	155
Compaq	
for Contura 3/20/ 25	
- 4MB / 8MB	220/379
for LTE-Lite 20/ 25/ 25C - 4MB / 8MB	249/399
IBM	
for L40SX/ N33SX	
- 4MB / 8MB	199/399
Macintosh	
for Powerbook 140/ 170 - 6MB	299
NEC	
for Ultralite III-SL25C/ SX20	
- 4MB / 8MB	239/419
Packard Bell	
for 386SX - 2MB / 4MB	155/259
Panasonic for 170/ 270/ 370 : 1MB	99
Toshiba	
for T1600 - 2MB	139
for T2200SX - 2MB / 4MB / 8MB	119/229/379
for T3100SX - 2MB / 4MB	129/209
for T3200 - 3MB	169
for T3200SX - 2MB / 4MB	129/209
for T3400 - 4MB / 8MB	239/449
for T5100 - 2MB	129
for T5200/ T8500 - 2MB / 8MB	129/449
for T6400 DX / SX / SXC - 4MB / 8MB	220/379

LASER PRINTER MEMORY UPGRADE

. JET RAM (3rd party) :	
Epson	
for EPL6000 - 2MB / 4MB	155/245
HP	
for Desk Jet 500/500C - 256k	69
for Laser Fax - 1MB	80
for Laser Jet II/ IID	
-1MB / 2MB / 4MB	99/145/235
for Laser Jet III/ IIIP/ IIID	
- 1MB / 2MB / 3MB / 4MB	79/125/169/215
Panasonic	
for KX-P4410/ 4430	
- 1MB / 2MB / 4MB	95/139/229
for KX-P4420/ 4450i	
- 1MB / 2MB / 4MB	99/145/235
for KX-P4450 - 1MB	139
for KX-P4455 - 2MB	169
for KX-P4400/ 5400 - 2MB	185
QMS	
for PS410 - 1MB / 2MB / 4MB	99/145/235
for PS815/ 825 - 2MB / 4MB	159/249
Texas Instruments	
for Micro Writer - 1MB	69
for Micro Laser Turbo XL - 1MB	69
. PACIFIC DATA :	
Pacific 4 for HP IIP+/ IIIP/ III/ IIID	
- 1MB / 2MB / 4MB	89/135/225
1-2-4 Plus for HP II/ IID	
- 1MB / 2MB / 4MB	115/159/249
Pacific 4 SIMM	
for Laser Jet 4P/ 4MP / 4+ / 4M+	
- MS420 : 4MB	165
for HP 4/ 4Si / 1200C/ 4+ : 4MB / 8MB	189/375
for ProTracer : 5MB / 8MB	365/515

10. MODEM & FAX

BOCA

14.4 Fax modem Int / Ext	99/135
14.4 Pocket Fax modem	169
28.8 Fax 14.4 modem Int / Ext	199/235

GVC

14.4 Fax modem Int / Ext	109/129
PCMCIA 9624 Fax / 144 Fax	129/235

HAYES

Accura 2400 Int / Ext	65/75
Accura 96 + Fax Int / Ext	159/169
Accura 144 + Fax Int / Ext	165/179
Accura 28.8 Fax 14.4 Ext	275
ESP Communication Single / Dual	85/125
Optima 144/144 Fax modem Ext	389
Optima 288 V.Fast 144 Fax Ext	435
PCMCIA Optima 144 Fax	299
SmartCom for Windows	*(47)

INTEL

Faxability Software	*(25)
Faxability Plus/OCR for Windows 2.0	*(75)85
New Fax modem 24/96 Int	55
New Fax modem 96 Int / Ext	109/129
New Fax modem 144 Int / Ext	119/139
PCMCIA 144 Fax modem	*(259)
SatisFAXtion modem w. Faxability software	
- 400 144/144 v.42, v.32bis, MNP5 Int	269
- 400e 96/144 4k data buffer Ext	*(289)325

MEGAHERTZ

PCMCIA XJ124FM 96/24 Fax w. X-Jack	*(135)
PCMCIA XJ1144 144 Fax w. X-Jack	245
PCMCIA XJ2144	275
P2144 Pocket 144/144	255

MICROCOM

Deskporte ES 28.8 Fast 14.4 Fax Ext	245
Deskporte EP 28.8 Fast 14.4 Fax Ext	335
Microporte 4232bis Fax modem	465

PRACTICAL PERIPHERALS

Fax Me (turn HP laser to fax receiving)	*(99)
Mini Tower 144FX144 Ext (w. free Compuserve)	*(159)
PM144FX144 Int	125
Pocket 144 Fax modem	299
PCMCIA 14.4 Fax modem	279
28.8 Fax 14.4 Ext	399

SHIVA

Net modem/E Ethernet BNC/TP	1475

SMARTLINK (w. AT&T chips)

1414BAV 14.4 Fax w. software Int	95
1414AV 14.4 Fax w. software Ext	125
1414PAV Pocket 14.4 Fax	159
1914BAT 19200/ 14.4 Fax Int / Ext	119/145

US ROBOTICS

Courier 16.8 Int / w. Fax	435/475
Courier 16.8 Ext / w. Fax	465/525
Courier v32 Terbo Fax 19.2MB w. ASL Int	359
Courier v32 Terbo Fax 19.2MB w. ASL Ext	379
Sportster 144/144 Fax MNP5 Int / Ext	109/135
Sportster 144/144 for Mac Ext	149
Worldport PCMCIA 14.4 Fax	235

ZOOM (7 yrs. warranty fr. Zoom)

96/96 w. WinFax Lite Int / Ext	125/145
144/144 w. WinFax Lite Int / Ext	135/155
144/144 Fax modem & Voice Int / Ext	165/185
28.8 V. Fast 14.4 Fax Int / Ext	199/235

ZY-XEL

U1496B 16.8 voice 14.4 Fax w. Win s/w Int	289
U1496B+ upgradable to 19.2Kbps Int	397
U1496E 16.8 voice 14.4 Fax, LED Ext	299
U1496E+ upgradable to 19.2Kbps Ext	399
U1496P Portable 16.8 /14.4 Fax 2 line	389

OTHERS

CommShare 550 Phone & Fax Auto Switching	89
CommShare 750 4 Port	109
National Semi TyIN 2000 Answer/Fax	89
SIIG TeleCommunicator 10-in-1 Fax modem	219
Supra 14.4 Fax modem Int / Ext	99/129
Winport (modem & fax sharing software)	185

12. MONITOR

EMC

EM1412 14" Mono Amber, 90-260v	95
EM1417 14" 1024 x 768 VGA Mono Paper White	119

HITACHI

CM1797M 17" 1280 x 1024 .26 NI	975

MAG (auto switch power)

DX15F 15" 1280 x1028 .28 (no LED)	399
DX17F 17" 1280 x1024 .26 (no LED)	725
MX15FG MPRII 15" Flat 1280 x 1024 .28, NI	469
MX17FG 17" Flat 1280 x 1024 .26, NI	859
Mac Adapter	25

MAGNAVOX

CM4015 15" 1280 x 1024 .28 NI	349

MITAC (3 yr. warranty)

M1564 15" 1280 x 1024 .28, NI	355
L1782 17" 1600 x 1280 .26, NI	699

MITSUBISHI

HL6955SETK 20" 1280 x 1024 .31, NI	1745
TFS6705 Diamond Pro 17" 1280 x 1024 .26, NI, Tinitron, MacII, 100-240V	1045
BNC Cable	39

NANAO

F340iW 15" Flat Screen 1024 x 768 .28	635
F550i 17" 1280 x 1024 .28, NI	915
F550iW 17" 1280 x1024 .28, NI	989
F560iW 17" 1280 x1024 .26, NI	1215
T560i 17" 1280 x 1024 .25, NI	1475
T660i 20" 1280 x1024 .31, Trinitron	1995
F760iW 21" 1280 x1024 .31, NI	1915
F780iW 21" 1600 x 1280 .26, NI	3095

NEC (120V)

SVGA 14" 1024 x 768 .28	329
3FGe 15" 1024 x 768 .28, Mac	569
3V 15" 1024 x 768 NI	469
4FGe 15" Flat 1024 x 768 .28, NI, Mac	625
5FGe 17" 1024x768 .28, NI / w. Lens	955/1035
5FGp 17" 1280 x 1024 NI	1129
6FGp 21" 1280 x 1024 NI	1995
NEC Monitor Lens : Anti-reflection, Anti-satic for 4FG / 5FG / 6FG	*(59)/*(99)/185
FG/MacII Cable Adapter Kit	14.50

NOKIA

449E 15" 1280 x 1024 .28, NI	499
447B 17" 1280 x 1024 .25	955
445X 21" 1600 x 1280 .26	2499

OPTIQUEST

1000S 14" 1024 x 768 .28, NI	279
1500D 14" 1280 x 1024 .28, NI	359
2000DX 15" 1280 x 1024 .27, NI	399
4000DS 17" 1280 x 1024 .27, NI	755
4000DC 17" 1280 x 1024 .27, NI	775

PHILIPS

1520AS 15" 1024 x 768 .28 NI	459
1762DT 17" 1280 x 1024 .25 NI	849
2130DC 21" 1600 x 1280 .28 NI	2365

PROTON

PM1561A 15" 1280 x 1024 w. speakers built-in	365

SIIG

9" VGA Mono Paper White 640 x 480	135

SONY

17SE 17" 1600 x 1280 .25	1099
1730 17" 1024 x 768 .25, NI	949
2038 20" 1280 x 1024 .30, NI	1945

STANDARD TECHNOLOGIES

400-M 14" VGA Paper White	119
428-VESA 14" 1280 x 1024 .28, NI	259

VIEWSONIC

4e 14" 1024 x 768 .28, 110/220V	279
5+ 14" 1024 x 768 .25, NI, MacII	475
6e 14" 1024 x 768 .28, NI	295
14e 14" 1024 x 768 .28, NI, MPRII	349
15EX 15" 1024 x 768 .28, NI, MacII	415
17 17" 1600 x 1280 .27, NI, MacII	975
17G 17" 1280 x 1024 .28, NI	825
20 20" 1600 x 1280 .28, NI, MacII	1575
21 21" 1600 x 1280 .26, NI, MacII	1799
Mac Cable Adapter	35

*(price) .... special, while supply last

13. MOTHERBOARD

AIR (w/o cpu)

486-DX2-66 256k, 3VLB slots IDE I/O built-in	189
486-33 / DX2-66 256k EISA, 3VLB slots	359
486SH - 33 / DX2-66 256k, Green PC	145
PCI 586-60 256k ISA VLB, IDE I/O built-in	385
PCI 586-60 256k EISA, Fast-wide SCSI	615

AMI

Super Voyager II 486-33 256k VLB, 7 slots	629
Super Voyager II 486-DX2-66 VLB, 7 slots	749
Enterprise IV 486-33 256k EISA VLB	735
Enterprise IV 486-DX2-66 256k EISA VLB	935

ALARIS (IBM)

486SLC2-66 64k VLB w. CPU & Math Proc.	269

DIAMOND

486-DX Fast Bus VLB, w/o cpu	169

IBM

486BL3X-75MHz VLB w. CPU & Math Proc.	439
486SLC-33 / 66 16k Internal cache ISA v.2 w. CPU & Math Processor	239

LYNX (USA made)

486-33 / 50 / DX2-66 256k VLB, w/o cpu	135

MICRONICS (w/o cpu)

BCP 386-33 64k, 4MB max w/o cpu	85
486-33 / DX2-66 256k VLB	235
JX30 486-DX2-66 256k VLB w. Zif socket	289
486-33 / DX2-66 256k EISA VLB	495
486-DX2-66 256k EISA E2	395
PCI 586-60 256k, ISA 3PCI slots	499

NICE (w/o cpu)

486-33 / DX2-66 256k VLB, Green PC	169
486-50 / DX2-66 256k Mini EISA VLB	225
486-50 / DX2-66 256k EISA VLB	315

SUPER P5VL & P54VL-PCI

Pentium P5VL- PCI 586-66 256k Flash Bios	385
Pentium P54VL- PCI 586-90 256k Flash Bios	495

OTHERS (w/o cpu)

486-33 128k ISA	105
486-33 256k ISA	119
486-DX2-66 256k VLB w. Zif Socket	125
486-DX2-66 256k PCI, built-in SCSI & AT I/O	285

14. MOUSE & JOYSTICK

AGILER

ATB-610 Serial Trackball	24.50
Master Plus 400	19.50

ANCER (black)

3-button	22

KENSINGTON

Expert Bus 4.0	119
Expert Serial & Trackball 4.0	99

LOGITECH

C14 Serial (2-button) oem	19
Cordless II	85
Cyberman 3D Controller	69
Dexxa Serial	19.50
First Serial C15 oem / reg.	25/31
Fotoman Plus Camera for PC & PS/2	549
Mouseman Bus oem / reg.	49/64
Mouseman Serial oem / reg.	34/50
PG15 Bus oem	45
Trackman Portable / Trackman II	69/75

MICROSOFT

Ball Point Portable	85
Bus 2.0 oem / w. Bus Card	43/65
Bus 2.0 w. Expansion Card	89
Mouse 2.0 + Windows 3.1	149
PS/2 2.0 / PS/2 Mouse Adapter	65/7.95
Serial 2.0 oem / manual	39/2.50
Serial 2.0 w. 9 to 25 pin Adapter	59

MOUSE SYSTEMS

Cobra (joystick)	14.50
Mouse ! Serial	21.50
New Point (trackball for laptop & PC)	*(29)
PC Mouse (3-button optical)	39.50
PC Trackball II	45
Serial Bus Card (9IRQs)	29
The New Mouse 400dpi (3-button)	39

JOYSTICK :

THRUSTMASTER

ACM Gamecard / Flight Stand Holder	29/19
Flight Control System / Pro	68/114
Formula TI (drive control)	129
Rudder Control	115
Weapon Control MKII	99

OTHERS

Analog Pro	35
Gravis Game Pad	23
Quickshot Smart Game Card	16.50

15. NETWORK

3COM

3C503 Etherlink II 16 bit coax / TP	169/179
3C507 16 bit Ethernet coax / TP	289/299
3C509 Etherlink III coax / 5 pack	*(109)/539
3C509 Etherlink III TP / 5 pack	*(112)/545
3C509 Combo / 5 pack	139/575
3C529 Etherlink III for MCA coax / TP	245/249
3C579 Etherlink III EISA coax / TP	235/239
3C589 PCMCIA TP / Combo	*(199/249)
3C16270 Link Builder TP, (12TP + 1AUI)	365
TokenLink III 16/4 ISA / MCA / EISA	435/495/645

ADDTRON (Novell compatible)

AE-200JL Jumperless BNC & TP	59
AE-200LB 8 or 16 bit BNC only	52
AE-200LC 8 or 16 bit BNC & TP	55
AE-200LT 8 or 16 bit TP only	52
Arcnet: Arc220TP 16 bit Combo	69
Arcnet: 8 Port Active HUB coax / TP	135/145
ET-200STS NE2000 coax compatitble	59
Boot PROM 16 bit	15
HUB: UTP8/ L (8TP + 1BNC)	155
HUB: UTP16 (16TP + 1BNC + 1AUI)	399
Pocket Adapter: BNC / TP	125/129
Transceivers: ET10TB (TP<-->AUI)	39
Transceivers: ET10CB (BNC<--> AUI)	39

ALLIED TELESIS (CentreCOM)

AT-1500T / AT1700T (TP)	79/79
AT-1500BT / AT-1700BT (BNC + TP)	99/99
Transceivers: MX10 / 210T	42/42

ARTISOFT (Lantastic)

Central Station II	399
Ethernet s/w Kit 5.0 w. cable Dos / Win	79/139
Lantastic Z 5.0 (2 stations)	89
Lantastic for TCP/IP single / 5-user	199/785
Lantastic 6.0 Starter Kit coax 2-user	325
Lantastic 6.0 Add On Kit coax / TP	155/159
Lantastic 6.0 Software single user	*(79)85
- for 5-user / 10-user	339/599
- upgrade for single / 5-user	39/129
NR2000C BNC only	167
NR2000T RJ45 only	169
NR-SI 2000C coax / 5 pk / 10 pk	85/375/685
NR-SI 2000T TP / 5 pk / 10 pk	89/379/689
NR-SI 2000A Combo	129
NR-SI 2000M for MCA	165
Remote Boot ROM for NR2000.	45
Sounding Board ISA	*(19)69
T-Runner 8 Port HUB / 12 Port HUB	315/515
Eagle Ethernet Cards :	
- Eagle EP2000 coax / TP	89/89
- Eagle NE2000T Plus Ethernet TP	92
- Eagle NE3200 EISA coax w. TPA (FS)	475
- Eagle NE3210 EISA 32 bit Combo (ws)	215

ASANTE (for MAC)

AH1012 Intelligent HUB 12 Port	875
10T HUB 8 Port	255
10T HUB 12 Port	495
FriendlyNet with AUI / BNC / TP	69

BOCA

PCI 32bit Ethernet Combo	89
PCMCIA 10BT Ethernet	169

CASTELLE

JetPress (network print server) for HP II, IID, III, IIID, coax / TP	429
LANPress (print server connects up to 4 printers)	
- Ethernet Thick/Thin coax (1P 3S)	475
- Ethernet 10BaseT (1P 3S)	475
- Ethernet BNC &10BaseT (2S 2P)	435

CC:MAIL

cc:Mail Dos Platform 4.0	199
cc:Mail Win Platform 2.0	345
cc:Mail 10-user pk / 25-user pk	249/579
cc:Mail Fax 1.2	1350
cc:Mail Group Pak for Win	595
cc:Mail Mobile E-Mail 20. for Win	135
cc:Mail Remote Dos	159
cc:Mail Router 4.0	875

D-LINK

DE-220T 16 bit TP	37
PCI 32 Ethernet Combo	195
VLB 32 Ethernet Combo	295

DCA

Crosstalk 2.1 for Windows	109
Commuicator	58
IRMA Workstation Dos / Win	225/359
IRMA 3270 for MacII/ LC/ SE	695

FARALLON

PN381 PhoneNet w. Timbuktu for Win	259

IBM

Ether 16 coax / TP / Combo	89/85/95
PCMCIA for Token Ring 16/4	479
PCMCIA 10B2 / 10BT	255/235

INTEL

EtherExpress LAN Combo	129
EtherExpress Flash LAN Combo / 5 pk	135/625
EtherExpress 16 coax / 5 pk	112/485
EtherExpress 16 Flash coax	122
EtherExpress 16 TP / 5 pk	109/*(465)
EtherExpress 16 TP Flash / 5 pk	119/565
EtherExpress 16 MCA coax / TP	175/185
EtherExpress 32 EISA (FS)	439
Flash 32 EISA (ws) Combo	249
HUB:12 Port EtherExpress ISA / EISA	565/645
LAN Protect 1.5 (virus protection)	685
LAN Sight Support 4.0	345
LAN Spool s/w 386 NLM v3.5A	425
Netport II Thin & Thick / 10BT	395/399
Netport Express XL	465
NetSatisfaxtion v2.5 for Novell	955
TokenExpress - 16/4 ISA	435
- 16/4 EISA / 16/4 MCA	655/475

LANPRO

2000JC 16 bit coax (BNC only)	49
2000JT 16 bit TP with cable	49
2000JA 16 bit Combo	54
EP3010A Pocket Combo	139
HUB ER5390 : 8 Port (8TP + 1BNC)	175
HUB ER5396 : 16 Port (16TP + 2BNC)	355
Netware NE2000 Combo Starter Kit	*(159)

NATIONAL SEMICONDUCTOR

InfoMover NE2000+ coax / 5 pack	89/415
InfoMover NE2000+ TP / 5 pack.	84/365
InfoMover Personal Netware Starter Kit	265
InfoMover Personal Expension 1-user.	159
InfoMover NE4100 PCMCIA coax	187
InfoMover NE4100 PCMCIA TP	189

NOVELL

Dos 7 (included Personal Netware)	59
EPROM for NE2000	35
Microdyne NE2000+ coax / 5 pack	95/445
Microdyne NE2000+ TP / 5 pack	89/*(399)
Microdyne NE2000+ Combo / 5 pack	115/*(495)
Microdyne NE3200 EISA coax	450
Netware 3.12	
- 5 / 10 / 25-user	*(595/1295/1995)
- 50 / 100 / 250-user	2695/3995/6995
Netware 4.01	
- 5 / 10 / 25-user	825/1795/2625
- 50 / 100 / 250-user	3595/5495/9695
NPE 400 Print Server	350
NTR 2000 Token Ring	435
Personal Netware oem / reg.	55/75
Personal Netware NE2000 Starter Kit (2-user)	159
Unixware Personal Edition - CD version	175
Unixware SDK v1.1 - CD version	75
Unixware NFS	135

SMC (Western Digital)

8003 Plus Elite 8 bit coax	99
8013 Plus Elite 16 coax / 6 pack	125/595
8013 Plus Elite 16 TP / 6 pack	127/629
8013 Plus Elite 16 Combo / 6 pack	149/775
8013 Plus/A for MCA / TP	*(175)195/199
8033 Elite 32 coax / TP	595/599
8 Port Concentrator (8TP + 1AUI)	349
12 Port Concentrator (12TP+2AUI+1BNC)	595
Elite Ultra 16 coax oem / reg.	89/110
- 6 pack	*(459)
Elite Ultra 16 TP oem / reg.	88/112
- 6 pack	*(455)
Elite Ultra 16 Combo oem / reg.	99/129
- 6 pack	*(549)
Elite Ultra 32 EISA Combo	235
Netware Boot ROM for Ethernet	34
Token Ring 16/4 ISA / MCA	279

SYNOTICS

Network products	call

XIRCOM

PCMCIA CE-10B2 BNC	*(245)
PCMCIA CE-10BT	*(249)
PCMCAI CE-10BC Combo	*(285)315
PE3-10B2 Pocket Adapter coax	*(255)285
PE3-10BT Pocket Adapter TP	*(259)289
PE3-10BC Pocket Adapter Combo	*(295)325
PEM-10B2 w. Modem / 10BT	*(395)/*(399)

CABLES & ACCESSORIES

10BaseT, Level 3 plenum 1000'	165
Belden 8259, RG58 1000'	165
RG58 500' / 1000'	65/109
Twisted Pair 2-pair, PVC, Level 3	
- 1000' / 500'	59/45
Twisted Pair 4-pair, PVC, Level 3	
- 1000' / 500' / 200'	89/55/35

16. POWER SUPPLY

AMERICAN POWER CONVERISON

APC-400 Smart-UPS (286, 386 WS)	289
APC-600 Smart-UPS (386, 486 FS)	359
APC-900 Smart-UPS (386, 486, FS & WS)	569
APC-1250 Smart-UPS (multiple FS & WS)	699
APC-2000-2 Smart-UPS	1150
APC-400 Back-UPS (300W)	179
APC-450 Back-UPS (325W)	215
APC-600 Back-UPS (425W)	285
APC-900 Back-UPS (650W)	375
APC PowerChute Plus :	
- for Novell	65
- for OS/2, Lan Server, 3 Com	75
- for Unix / Xenix	99
- for Windows NT	69
Power Doctor (DOS) I/F Kit for Smart-UPS	79
Surge Arrest Unit	call

GENERAL

250W for Baby AT	45
250W for Baby or Mid Tower	45
250W for AT	47
250W for Full Tower	49
300W for Full Tower	69
550W for UPS	279
1200W for UPS	659

PC POWER COOLING

Standard 220 for Desktop / Full Tower	85/85
Silencer 270	
- for Slim (baby or mid tower)	149
- for AT Desktop / Full Tower	165/165
Turbo Cool 300	
- for Slim (baby or mid tower)	149
- for Desktop / Full Tower	175/175
Turbo Cool 450	
- for Desktop / Full Tower	325/325
Twinpower 900 (redundant)	925

TRIPP LITE

Isobar 4	*(29.95)
Isobar 6 w. Fax modem Protection	*(45)
Isobar Console CC16 Plus w. RJ11	75
Isotel 4 w. RJ11	*(39.95)
UPS Monitoring Board for Netware	59

17. PRINTER

BROTHER

HJ-400 Desktop Ink Jet for PC or Mac	275

CANON

BJ-200 Ink Jet	319
BJC-600 Ink Jet	599

CITIZEN

GSX 145 24 pin, 132 column	355
GSX 220 24 pin	179
GSX 230 Fonts & Quiet	219
GSX 240 Scalable Fonts & Quiet	285
Projet II Ink Jet / after rebate	279/249
Accessories :	
- Color Option for GSX 130	45
- Color Option for GSX 145	65

DEC (Digital Equipment)

Printers	call

HP (Hewlett Packard w. toner)

Desk Jet 520	289
Desk Jet 500C / 560C	395/569
Desk Jet 1200C / Postcript PC, Mac	1429/2195
Laser Jet 4	*(1365)
Laser Jet 4+ / 4M+	1415/1915
Laser Jet 4L / 4ML	659/985
Laser Jet 4P / 4MP	965/1355
Laser Jet 4Si / 4SiMX	2895/4295
Accessories :	
- Duplex C2016A for 4Si or 4SiMX	495
- Envelope Power Feeder 75 Sheet (HP4)	279
- Jet Direct for 10BT (J2371A)	429
- Jet Direct Combo (J2372A)	465
- Legal, Letter or A4 250 Sheet Tray (HP4)	99
- Legal, Letter or A4 500 Sheet Tray (HP4)	109
- Lower Cassette w. Letter Tray (IIP, IIIP)	149
- Optional 500 Sheet Legal Letter A4 (HP4)	279
- Postcript for 4	329
- Postcript for 4Si (C2013A)	575
- Toner for II, III	79
- Toner for IIP, IIP+, IIIP	66
- Toner for 4	99
- Toner for 4L or 4P	69
- Toner for 4Si	135

LASER MASTER

Win Printer 800 Postcript	1075
Win Printer XL600 11x17, 600x660ppi	2350
WinJet 1200K (postcript for HP4+)	*(675)775

MICROTEK

TrueLaser MTP-306 6ppm, 2MB, 35 fonts	*(795)

NEC

Super Script 610 Laser 6ppm, 300x300ppi	499

OKIDATA

ML590 24-wire	429
OL410E Laser 600ppi, 4ppm	665
ML184T 9 pin, Par	229
ML320 24 pin, Epson	325

PACIFIC DATA

ProTracer II Ink Jet (CAD Plotter) A4 to A2 size, 360dpi, i960RISC, 512k, 45dBA	1295
ProTracer II-GL2 w. HP-GL2 & 2MB	1699
Accessories :	
- HP-GL Emulation Card	375
- Ink Cartridges	19.50
- Postcript Emulation Card	375
- Sheet Feeder I / II	135/115

*(price) .... special, while supply last

PANASONIC

1150 9 pin, 55dBA	139
2023 24 pin, Quiet	199
2123 24 pin, 43.5dBA, Color capability	239
2124 24 pin, 43.5dBA, Color capability	319
3624 24 pin, 46.5dBA, Quiet	399
4410 Laser, 512k, 5ppm	549
- Corona KX-PCR3	49
- Developer KX-PDP4	110
- Developer KX-PDP5	125
- Drum KX-PDM4	99
- Drum KX-PDM5	109
- Extra Cassette KX-PKC2	45
- Fonts Card KX-P47x	95
- Fuser Unit KX-PFS5	105
- Optional Second Cassette KX-P495	135
- Toner KX-P453	42
4420 Accessories	
- Developer KX-PDP2	95
- Drum KX-PDM2	99
- Envelope Tray KX-P431	59
- Legal Tray KX-P425	45
- Ozone filter KX-PFT2	29
- Toner KX-P451	42
4430 Laser, 1MB, 5ppm	665
- Accessories same as 4410	
4400 Led Page Printer, 4ppm	499
- Apple Talk Interface KX-P412	179
- Drum Unit KX-PDM6	95
- Postcript Upgrade Board KX-PSU3	399
- Postcript Fax Option KX-PFX1	259
- RS232 Serial Interface KX-P411	95
- Toner Kit KX-P455	17.50
4450 & 4450i & 4455 Accessories	
- Developer KX-PDP1	95
- Drum KX-PDM1	145
- Envelope Tray KX-P430	59
- Legal Tray KX-P420	45
- Ozone Filter KX-PFT1	32
- Toner KX-P450	42
4455 Postcript, 11ppm	1695
5400 Led Postcript Page Printer, 4ppm	799
- Accessories same as 4400	
Others Accessories :	
- 32k Buffer Dot Matrix KX-P43	65
- Auto Sheet Feeder for 1124 KX-P36	120
- Color Upgrade Kit KX-PCK11	55
- Serial Interface Card PS-13	75
- Single Bin cut Sheet Feeder KX-PT10	95

QMS (Adobe Postcript)

PS410 2MB, 45 Fonts, 4ppm	925
- Envelope / Legal / Letter Tray	69/69/69
- Lower Cassette w. Letter Tray	149
- Toner	95

SEIKO

Smart Label Printer Pro / Plus	245/159
- Standard Label for Pro or Plus (2 rolls)	7.95

TEXAS INSTRUMENTS

Printers	call

LASER PRINTER ACCESSORIES

PACIFIC DATA

25 in One! for HP DJ500	99
25 in One! for HP II, IID, IIP, IIP+, III, 4Si	245
Complete Font Library for HP III, IIID, IIIP	255
Font Bank for all HP Lasers (stores soft fonts) 0.75MB / 1.5MB	205/269
Pacific Connect XI :	
For HP II, IID, III, IIID -	
- 5 Port 256k / 1MB (4S 1P)	309/379
- 10 Port 256k / 1MB (10S)	449/519
For HP 4, IIISi, Paint Jet XL300 -	
- 7 Port 1MB / 4MB (6S 1P)	449/649
- 10 Port 1MB / 4MB (10S)	519/179
Pacific DirectNet for Novell	369
Pacific DircetNet for Novell & UNIX	499
Pacific Page 2MB, Postcript for HP II	365
Pacific Page II/XL 4MB, Postcript for HP II	699
Pacific 4 Postcript for HP 4	259
Pacific Page PE for HP IID,IIP,IIP+,III,IIID,IIIP	279
Pacific Page PE 2MB	385
Pacific Talk	179
Postcript 4MB PE/XL for III	699
Plotter in a Cartridge for HP II	225
Plotter in a Cartridge PE for HP IID, IIP, IIP+, III, IIID, IIIP	225

PELICAN

Ribbons	call

19. SCANNER

ARTEC (hand)

ViewScan 256 w. OCR	89

HP (flatbed color)

ScanJet IICX Color w. Kit	945
- Auto Document Feeder	475
ScanJet IIP w. Kit (gray scale)	499

LOGITECH (hand)

Scanman Easy Touch w. OCR	189
Scanman 256	169
- w. Omni Page OCR	185
Scanman Color	355
- w. Omni Page OCR	399

MICROTEK (flatbed color)

Scan Maker II w. Photoshop L.E.	649
Scan Maker III	2495

MOUSE SYSTEM (hand)

Page Brush 256 w. OCR / after rebate	94/79
Page Brush Color	275

TAMARACK (flatbed color)

ArtiScan 24 bit, Color / 256 Gray Levels	
- w. Publisher L.E. 600 / 800 / 1200 dpi	615/715/985
- w. Pub.L.E. & OCR 600 / 800 / 1200 dpi	665/765/1025
- w. Photostyler 600 / 800 / 1200 dpi	745/845/1115
- w. Phtoshop 2.5 600 / 800 / 1200 dpi	745/845/1115
Slide Scan Kit (transparency, slide, X-ray) 600 / 800 / 1200 dpi	525/525/595

OTHERS

Fax Scanner (turn fax into scanner)	*(49)79
Omni Scan 256 for Win	*(259)

20. TAPE BACKUP

COLORADO

Backup for Win	39
DJ-20 250MB QIC-80 oem / reg.	149/165
- 3M DC2120 Tape Cartridge	14.50
- AB-11 External Tape Port	37
- Cable (2FD & tape backup)	6
- FC-20 Controller	79
- KE-09 External Kit w/o Controller	69
- TC-15 Controller w. Data Compression	169
- Unix / Xenix Driver	99
PowerTape PT-25 2GB 300Kb/s Int	965
PowerTape PTE-25 Ext	1095
PowerTape PT-50 4GB 300Kb/s Int	1525
PowerTape PTE-50 Ext	1655
Tracker 120MB (printer port)	285
Trakker 250MB (printer port)	319

CONNER

Viper 2150S Int	335
Tape Stor 250MB w. 3M Cartridge	145

EXABYTE

EXB-2501 SCSI-2 750MB - 1.5GB Int	515
EXB-2501 SCSI-2 750MB - 1.5GB Ext	685
EXB-4200 4mm Dat. 2GB Int / Ext	845/995
EXB-8205 8mm Dat. 2.5 - 5GB Int.	1375
EXB-8205 8mm Dat. 2.5 - 5GB Ext	1645
EXB-8505 8mm Dat. 5 - 10GB Int	2085
EXB-8505 8mm Dat. 5 - 10GB Ext	2350
FS1G w. Control Kit (2501 drive, Adaptec1522, s/w, cables, cartridge) Int / Ext	699/899

HEWLETT PACKARD

35480 4mm SCSI Dat. 5GB Int	1069

IOMEGA

250MB Insider 3.5" with 5.25" frame	185

21. VGA CARD

(All cards 1024 x 768 except stated)

ATI

Graphics Ultra Plus 2 DRAM w. mouse reg.	219
Graphics Ultra Pro 2 ISA w. mouse reg.	299
Graphics Ultra Pro 2 VRAM VLB reg.	299
Graphics Ultra Pro 2 EISA reg.	335
Graphics Ultra Pro 2 PCI reg.	315
Graphics Ultra Pro Turbo PCI 2MB	389
Graphics Ultra Pro Turbo PCI 4MB	589
Graphics Wonder 1MB ISA	175
Graphics Wonder 1MB VLB	179

CARDEX

Cirrus Logic GD5434 64bit 2MB PCI	199
ET4000 Tseng Lab 1MB ISA / VLB	79/109
ET4000 W32i VLB 1MB / 2MB	129/179
ET4000 W32p 2MB PCI	199
S3 Vision 864 64bit 2MB PCI	199

DIAMOND

Stealth 24 DRAM 1MB ISA / VLB	139/145
Stealth 32 1MB PCI / VLB	175/175
Stealth 32 2MB PCI / VLB	229/229
Stealth Pro VRAM 1MB ISA / VLB	225/235
Stealth Pro VRAM 2MB ISA	309
Stealth Pro VRAM 2MB VLB oem / reg.	289/315
Viper P9000 VRAM 2MB VLB reg.	349
Viper VRAM 2MB PCI oem / reg.	359/379

MATROX

IMP/3AH 1600 x 1200, 3MB ISA	735
IMP/3VH 1600 x 1200, 3MB VLB	745
VLB/2 1280 x 1024, 2MB VLB	425
VLB/2 Plus 1600 x 1200, 2MB VLB	475
PCI/2 1600 x 1200, 2MB PCI	399
PCI/2 Plus 1600 x 1200, 2MB PCI.	435
PRO/4.5ZV 1600 x 1200, 8MB VLB	1359
Upgrade/2 2MB Memory	235

MEDIA VISION

ProGraphics 1024 VL 256 Color 1MB	*(199)239
ProGraphics 1024 VL 16m Color 2MB	*(285)339
ProGraphics 1280 4MB	675

METHEUS

Premier 928 VRAM 4MB	765
Premier 928VL VRAM 2MB VLB	599
- 1MB VRAM Memory upgrade	129

NUMBER NINE

T134020, 1280 x 1024, 90Hz, S3-928 chip	
- GXe Level 10 VRAM 1MB ISA	259
- GXe Level 11 VRAM 2MB ISA / VLB	335/339
- GXe Level 12 VRAM 3MB ISA / VLB	395/405
- GXe Level 14 VRAM 4MB ISA / VLB	635/639
GXi-TC L29 1280 x 1024, 256k color, 72Hz VRAM 4MB, DRAM 1MB	1395
9GXe-64 DRAM 1MB PCI / VLB	195/195
9GXe-64 DRAM 2MB PCI / VLB	259/259

ORCHID

Celcius VLB 1MB / 2MB	139/199
Fahrenheit 1280+ DRAM 1MB ISA	139
Fahrenheit 1280+ 24 bit 1MB VLB	155
Kelvin 64 Win Accel 1MB PCI / VLB	165/165

OTHERS

CGA / MGP Card (monographic w. printer port)	29
Intel Smart Video Recorder	*(369)499
Oak087 Super VGA 512k / 1MB	52/65
Paradise Window Accel 24 bit	129
Video Plus (video image grabber)	215
V-Mate Pro (flicker free ext. video encorder)	199
WinVision (video capture)	165

SOFTWARE

1. CD SOFTWARE

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3D Body Adventure	45
3D Dinosaur Encyclopedia.	19
7th Guest for Dos	19
7th Guest + Dune	45
20th Century Video Almanac	25
101 Best Selling Games	15
300 Waycool Windows Games	14
A Hard Day's Night oem / reg.	22/29
Adventures (1000 tours) MPC oem / reg.	19/29
Adventure in Heaven	9.95
Aegis Guardian of Fleet	49
Aesops Fables (E-Book) MPC	15
Aircraft Encyclopedia	25
All Clip Art Graphic Tools WIN.	15
American Alive Tour Guide oem / reg.	15/45
American in Space	19
American Premier Shareware	9.95
Animation Festival	24
Arthur's Teacher Trouble MPC / MAC	19/39
Asia ALive Tour Guide WIN.	15
Audubon's Birds MPC, MAC	14
Audubon's Mammal MPC, MAC	14
Auto Map Road Atlas WIN	49
Auto Registration 94' WIN,MAC	16
Battle Chess Mult. Enhanced MPC, MAC	19
Battle Isle II	44
B.B.S. Explosion	19
Better Homes & Gardening WIN,MAC	43
Beauty and the Beast MPC	13
Bible Library	22
Bicycle Collections	33
Body Works 3.0	42
Bug Adventure	47
Business Assistant	7.95
Business CD Rom	16
Business Master (shareware)	13
Business Phonebook 93'-94'	15
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California Collection	12
California & Hawaii Travel + Golf Pk	35
Cardshop Plus	19
Castle II	49
CD CADD 3.7	22
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CD Fun House (350 games) DOS, WIN, MAC	17
CD Game Pack II (10 games) / for MAC	16/22
Challenge Pack (game pk III)	22
Chaos Continum	15
Chef Ware	34
Chess Master 4000 Turbo MPC	19
• *Chesnut Series*	*8.95 each*
- 3 Stoogers	
- Betty Boop	
- Bible and Religion	
- Bugs Bunny	
- Caricatur Classic	
- Classic Cartoon (spanish)	
- Clip Art Warehouse	
- Complete Home and Office Legal Guide	
- Computer Reference Library	
- Death Star Arcade Battles	
- Dictionary and Languages	
- Encyclopedia of Sound	
- Flash Card Video (grade 2-5)	
- Game Jumboree	
- Gardening	
- Godzilla vs. Megalon	
- Ham Radio	
- Hilarious Sports Bloopers	
- HIV Resource AIDs Guide	
- Hugo House of Horrors	
- Midi Master Collection	
- Multimedia Manian	
- Night of the Living Dead	
- Our Solar System	
- Personal Finance	
- Porky Pig	
- Sound Sensation	
- Technotools	
- The Complete Book Shop	
- Windoware	
- World Traveler	
-- Shareware Overload Trio Pack	19
Classic Collection (audubon's birds + mammals + shakespeare + sherlock holmes)	25
CNN Time Capsule	29
Color It for MAC	19
Colossal Cookbook	9.95
Commache Maximum Overkill	59
Complete House MPC	19
Complete Windows Set	17
Compton's Family Choice	15
Compton's Interactive Encyclopedia	35
Compton's New Century Reference MPC	24
Companion for OS/2	15
Conan - The Cimmerian	19
Constiracy	26
Cookbook Heaven	9.95
Corel Artshow 93' (book + CD)	24
Corel Artshow 94' (book+CD)/ CD only	29/19.50
Corel Professional Photo CD	19ea.

- Butterfly - Mountains - People
- Resident Interior - Tree & Leaf
- Sun Rise & Set - Sampler
- Water Falls - Wild Animals
- Yellow Stone Park - Undersea Reef

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Cyber Race	19
Cybergenic Ranger (adventure game)	*(9)15
Daemonsgate	34
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Deep Voyage MPC, MAC	17
Deluxe Game Pack (4 on 1)	19
Desert Storm MPC, MAC	18
Desktop Bookshelf	9.50
Destination Mars	*(18)
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Dinosaur Safari	19
• *Discis Series DOS, WIN, MAC*	*19.95 each*
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- Cinderella	
- Heather Hit Her First Home Run	
- Long Hot Day at the Ranch	
- Moving Gives Me Stomach Ache	
- Mud Paddle	
- Paper Bag Princess	
- Tale of Benjamin Bunny	
- Tale of Peter Rabbit	
- Thomas Swimsuit	
- The Night Before Christmas	
- The Scary Poems for Rotten Kids	
Distant Sun 2.0 for Win	78
Doctor's Book of Home Remies WIN, MAC	16
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Dracula Unleased	28
Dragon's Lair	39
Dragon Sphere	49
• *Dream Team series :*	
- Alphabet Blocks MPC (age 3-7)	24
- Advanced Spelling Tricks (age 9-12)	24
- Basic Spelling Tricks (age 7-10)	24
- Beginning Reading	24
- Early Man MPC	24
Dr. Fun Pack / Dr. Games / Dr. Music	8.50ea.
Dr. Shareware / Dr. Windows	8.50ea.
Dune	27
ECO-Quest: The Search for Cetus	22
Education Master (shareware)	12
Educational Disk	17
Electric Science - Hugo & Nebula	19
Electronic Art - Renaissance I / II	21/21
Electronic Art - Western Arts	21

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Family Education Collection	16
Family Zoo Animal Encyclopedia	19
Fantazia Fonts and Sound	21
Fatty Bear : Birthday party	*(15)
Fatty Bear : Fun Pack	*(15)
Flesh Art (clip art)	27
Font Elegant	12
Font Expert MPC	9.95
Font Master Library	7.95
Font Platinum	9.95
Fractal Ecstacy	29
Frontier Elite	37
Full Bloom PC, MAC	17
Gabriel Knight oem / reg.	24/48
Game Arena	7.95
Game Expert MPC	9.95
Game Platinum WIN	9.95
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GDI : Wind Form	65
Grammitik V Dos / for Win	57/59
Harvard Graphics 2.0 for Win	*(265)
- upgrade	89
Harvard Graphics 3.06 Dos	365
Hijaak 2.1 Dos / 2.0 for Win	89/85
Idealisher 4.0	99
IIT XtraDrive 3.0 (data compression)	65
Intermission Screen Saver	29
Johnny Castaway Screen Antics	*(9)19
Kar's Power Tools for Win	115
Kid CAD (by Davidson)	29
Kid Works II for Win	36
Kodak PhotoEdge CD	89
Kodak Shoebox Image for Win	*(95)
LapLink V	105
- upgrade	55
LapLink V Netware	*(125)145
Lyriq Crosswords	19.50
Mac-in-Dos for Win / Plus	99/139
Managing Your Money for Win	19.95
Music Power for Win	39.50
One Write Plus Accounting & Payroll	49
Passport Encore 3.0	365
Peach Tree Accounting 2.0 for Win	115
PFS : Publisher for Win	43
Photo Morph for Win	*(69)79
Power Basic	95
Power Japanese for Win - FD / CD	195/199
Power Search (file manager)	*(25)39
Printshop Deluxe 1.2 for Win / Business	49/27
Procomm Plus 2.1 Dos	69
- 1.02 for Win	95
QA Plus 4.7 Dos / for Win	85/89
Quark X Press for Win v3.3	599
Qualitas 386 Max 7.0	*(59)
Sherlock for Win (filing & retrieval)	85
SpinRite 3.1	79
Soft Windows (for Power Mac)	*(295)
Stacker 4.0	95
- upgrade	55
- for OS/2	125
StageSoft Accounting	125
- w. Payroll	159
- Lan version	*(255)
Star Trek Screen Saver	*(19.50)
Superstor Pro 2X	*(39)
Taxi w. Zagat Surveys	39
Time Slip 5.0 Dos / for Win	169/189
Turbo CAD 3.0 w. free 500 drawing symbols	85
- Professional version for Win	219
T-Value 3.0 (interests, loan)	59
Uninstaller 2.0 (microhelp)	45
Vista Pro 3.0	69
VISIO 2.0 for Win	*(125)199
Wave 2.0 for Win (by Turtle Beach)	75
Win Guard Plus	42
Winfax Pro 4.0	85
WinSense (windows optimizer)	49
Winsleuth Gold Plus	59
Wordscan 3.0 / Plus (by Calera)	179/*(399)
XTree Gold 3.0	95
Xtree 1.5 for Win	69

*(price) .... special, while suppy last

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Resources

Calendar Of Events

Conferences, Shows, Special Events

June

June 30 South Bay AutoCAD User Group Quarterly Meeting. Silicon Graphics, Inc., Mountain View. South Bay AutoCAD User Group. Call: (408)282-4448.

July

July 3 Computer, Ham Radio, Electronics Swap Meet. Las Positas College, Livermore. Livermore Amateur Radio Club. Call: (510)447-3857.

July 12 Abstract And Virtual Worlds Free Presentation. San Jose. Computer Literacy Bookshops. Call: (408)435-1118.

July 13 Impact Of International Standards On Software Free Presentation. San Jose. Computer Literacy Bookshops. Call: (408)435-1118.

July 13–14 First International Workshop On Community Networking Integrated Multimedia Services To The Home. San Francisco. IEEE Communications Society. Call: (415)905-4400.

July 13–August 23 Retrieving The Future CD-ROM Exhibition. Berkeley. Pacific Film Archive. Call: (510)642-1412.

July 17 Computer Show And Sale. Scottish Rite Center, Sacramento. MarketPro. Call: (415)456-6730.

July 19–21 Mactivity'94 *[proofreader: it's supposed to be all one word like this; at least, that's how it is on the flyer]* **Conference And Exposition.** San Jose Convention Center, San Jose. Mactivity, Inc. Call: (408)354-2500 or 1-800-798-2928.

July 21 A.C.E.—Accounting & Computers Exchange Quarterly Meeting. San Francisco. J.C. Lukrich & Co. Call: (415)905-6900.

July 25–27 IC Card Expo. Santa Clara Convention Center. IC Card Systems & Design. Call: 1-800-828-0420.

July 25–29 Object World San Francisco Conference and Exposition. San Francisco. IDG World Expo and Object Management Group. Call: Lynn Fullerton or Susan Granata, 1-800-225-4698.

July 26–August 7 An Object Orientation Play. Cowell Theater, Ft. Mason, San Francisco. Modus Ensemble. Call: City Box Office, (415)392-4400.

July 27–29 Fourth Annual Silicon Valley Personal Computer Design Conference And Exhibition. San Jose. SysTech Research. Call: Ken Majithia, (408)293-8383.

Notice To Register For ONE BBSCON

The Third Annual ONE BBSCON will be held at the INFORUM/Atlanta Market Center in Atlanta, GA, on August 17–21. Registration by August 1 is $250, which includes admission to all ONE BBSCON and SSS sessions and exhibits, Wednesday evening Welcome Reception, coffee breaks, and three lunches. After August 1 the fee is $325. A special rate of $95 per night, single or double occupancy, is available for convention attendees at the Atlanta Marriott Marquis if reservations are made with ONE, Inc. prior to July 27. For more information and a registration form, call ONE, Inc. at (303)693-5253.

JULY 25–29

OBJECT WORLD

MOSCONE CENTER, SAN FRANCISCO

The fourth annual Object World San Francisco will focus on the business and technical aspects of object technology and offer seventeen full-day and half-day tutorials, sixty-three conference sessions, and two keynote presentations. A live SUNERGY online interactive broadcast and a keynote focusing on how Avanti Systems and Mobil Oil have successfully deployed object technology at their organizations will be featured. There will be over ninety-five exhibitors, dozens of new products, the new Distributed Applications Showcase, book signings, exhibitor seminars, and a play called An Object Orientation. For more information call Lynn Fullerton or Susan Granata at IDG World Expo at 1-800-225-4698 or (508)879-6700.

AUGUST 13–14

FIRST U.S. HACKER CONGRESS

HOTEL PENNSYLVANIA, NEW YORK CITY

Hackers on Planet Earth celebrate the hacker world and the tenth anniversary of 2600 magazine at the First US Hacker Congress. There will be speakers and demonstrations from around the world, a collection of films and rare videos on hacking, and a network between the participants and the outside world (bring your computer). Admission is $20 in advance for the entire weekend, $25 at the door. If you would like to help organize the event, contact H.O.P.E. at (516)751-2600 or Internet at 2600@well.sf.ca.us . For more information: 2600 Magazine, The Hacker Quarterly, Summer 1994 edition; 2600 Voice BBS at (516)473-2626; or alt.2600 on the Internet.

Classes, Seminars, Workshops

June

June 27 Intermediate Programmer's Object PAL Class. San Francisco. The Dublin Group. Call: 1-800-464-8344.

June 27 Intro To PC/Word Class. San Jose. InfoMind Computer Training Center. Call: (408)243-1121.

June 27 Lotus Notes System Application Development I Class. San Francisco. Infotec Training Institute. Call: 1-800-282-7990.

June 27 Lotus Notes System Development I Class. San Francisco. Infotec Training Institute. Call: 1-800-282-7990.

June 27 Paradox 4.5 For DOS Level 3 Class. Emeryville. Northwest Computer Systems. Call: Cathy Day, (510)653-0808.

June 27 Shell Command Language For Users Class. Pleasanton. AT&T Technical Education Center. Call: 1-800-TRAINER, prompt 1, ext. 6564.

June 27–July 1 Autodesk 3D Studio Basics Class. San Francisco. SFSU Extended Education. Call: (415)904-7700.

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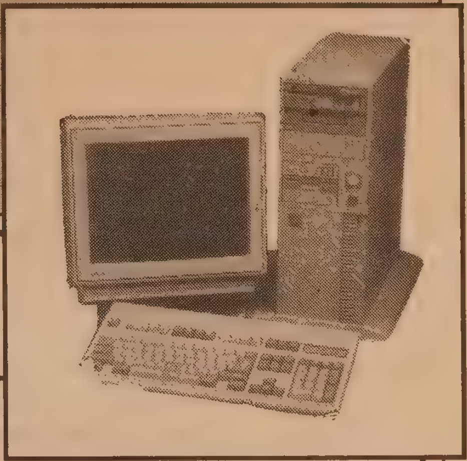

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Sound Blaster 16 bit MCD, Free Speakers, Microphone
Panasonic CD • 563 (Doublespeed, Multi-session)
7 CD titles: MPC Encyclopedia, King's Quest 5, Mixed Up Mother Goose, Tempera Photo CD, US Atlas, World Atlas, Loom
$360

Multimedia Power Kit IIIB
Sound Blaster 16 bit MCD, Free Speakers, Microphone
Mitsumi FX-001D (Doublespeed, Multi-session)
6 CD titles: MPC Encyclopedia, Return to the Zork, Chessmaster 3000, Mavis Beacon's Typing, US Atlas, World Atlas
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486DX50/256K	1259	1289
486DX40/256K	1119	1169
486DX33/256K	1149	1199
486DLC33/128K	939	999
386DX40/128K	899	959

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- SVGA .28 Monitor
- SVGA w/1MB
- 2S, 1P, 1G

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- VL Bus IDE Controller
- 2S, 1P, 1G
- Mini Tower Case
- 101-KeyKeyboard

486SX33	$999
486CX40	$1139
486DX50	$1269
486DX266	$1289

MOTHERBOARDS

486DX2/50/256K VL Bus	$479
486DX/50/256K VL Bus	479
486DX2/50/256K VL Bus	415
486DX/40/256K VL Bus	313
486DX/33/256K VL Bus	350
486DX4	CALL
486DX PCI	CALL

MONITORS

SVGA (1024x768) .28	$220
SVGA (1024x768) .28 Non-Int	240
SVGA Viewsonic 4E	270
SVGA Viewsonic 6E Non-Int	285
SVGA Viewsonic 15 Non-Int	455
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Orchid Fahrenheit VL Bus w/1MB	149
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ATI Pro VL Bus w/2MB	349
Orchid Celsius VL Bus w/2MB	319
Orchid P9000 VL Bus w/2MB	345
AIR P9000 VL Bus w/2MB	385

CASES

Mini Tower	$47
Medium Tower	75
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Zol 2400 Baud	$39
Zol 96/24 Modem & Fax w/Win	55
Zoltrix 14.4 Modem & Fax	120

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CP30420	420MB IDE	289
CP3544	540MB IDE	406
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7213A	210MB IDE	$209
7245A	245MB IDE	239
7345A	345MB IDE	299
LXT535A	535MB IDE	495
LXT535S	535MB SCSI	549
MXT540A	540MB IDE Fast	549
MXT540S	540MB SCSI Fast	709
WESTERN DIGITAL		
WD	213MB IDE	199
WD	255MB IDE	215
WD	340MB IDE	269
WD	420MB IDE	289

KEYBOARDS

Chicony	$18
Keytronic USA	36
Maxi Switch	35
Omnikey 102/Ultra	89/99
Focus w/Cal	35

CONTROLLERS

IDE w/IO	$18
IDE VL Bus	30
SCSI-2 VL Bus (AIR)	235
SCSI VL Bus (Bustek) 545S	CALL
SCSI VL Bus (Ultrastor) 34F	CALL

MULTIMEDIA & CD-ROM

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Sound Blaster 16ASP	209
Toshiba CD Rom 3401	335
Panasonic CD Rom	195

MOUSES

Microsoft Compatible	$13
Microsoft Serial	49
Microsoft Bus	69
Logitech MouseMan	59

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4MBx36 SIMM (72 Pins)	635
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(415) 225-0153

SANTA CLARA

5029 Stevens Creek Blvd.
Santa Clara, CA 95051
(408) 249-4297

June 27–July 11 Photoshop 5 Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

June 27–July 25 Computer Media Fundamentals Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

June 28 Advanced Access 1.1 Class. San Francisco. The Dublin Group. Call: 1-800-464-8344.

June 28 Fox Pro 2.5 For DOS/Windows Level 3 Class. Emeryville. Northwest Computer Systems. Call: Cathy Day, (510)653-0808.

June 28 Intermediate Excel/Lotus/QuattroPro Class. San Jose. InfoMind Computer Training Center. Call: (408)243-1121.

June 28 Intermediate Paradox For Windows 4.5 Class. San Francisco. The Dublin Group. Call: 1-800-464-8344.

June 28 Intermediate Word For Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

June 28 Intermediate WordPerfect 5.1 Class. Santa Clara. The Dublin Group. Call: 1-800-464-8344.

June 28 Intermediate WordPerfect For Windows 5.2 Class. Santa Clara. The Dublin Group. Call: 1-800-464-8344.

June 28 Lotus 1-2-3 For Windows Level 2 Class. Emeryville. Northwest Computer Systems. Call: Cathy Day, (510)653-0808.

June 28 WordPerfect For DOS Desktop Publishing Seminar. Millbrae. OmniTrak Learning Systems. Call: (801)756-9932.

June 28–29 Advanced 2D AutoCAD Workshop. Santa Clara. The Copper Connection. Call: (408)970-9838.

June 28–29 Beginning Photoshop Class. San Francisco. Ciber Training Services. Call: (415)281-6100.

June 28–29 Visual Basic Level I Class. San Francisco. Ciber Training Services. Call: (415)281-6100.

June 28 & 30 Beginning QuarkXPress Class. San Francisco. Ciber Training Services. Call: (415)281-6100.

June 28 & 30 Intermediate Excel Class. San Francisco. Ciber Training Services. Call: (415)281-6100.

June 28 & 30 PageMaker For Windows Level I Class. San Francisco. Ciber Training Services. Call: (415)281-6100.

June 28–August 16 Writing For Multimedia: New Horizons For Writers Class. San Francisco. SFSU Extended Education. Call: (415)904-7700.

June 28–July 26 3D Studio 2 Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

June 29 Advanced Word For Windows 6.0 Class. Santa Clara. The Dublin Group. Call: 1-800-464-8344.

June 29 Intermediate DOS 6.0 Class. San Francisco. The Dublin Group. Call: 1-800-464-8344.

June 29 Intermediate Word/WordPerfect/Ami Pro Class. San Jose. InfoMind Computer Training Center. Call: (408)243-1121.

June 29 Intro Microsoft Word 6.0 Workshop. Santa Clara. The Copper Connection. Call: (408)970-9838.

June 29 Intro To Excel 4.0 Class. San Francisco. The Dublin Group. Call: 1-800-464-8344.

June 29 Lotus Notes System Application Development II Class. San Francisco. Infotec Training Institute. Call: 1-800-282-7990.

June 29 Lotus Notes System Development II Class. San Francisco. Infotec Training Institute. Call: 1-800-282-7990.

June 29 Quattro Pro/Windows Level I Class. San Francisco. Ciber Training Services. Call: (415)281-6100.

June 29 WordPerfect 6.0 Level 3 Class. Emeryville. Northwest Computer Systems. Call: Cathy Day, (510)653-0808.

June 29 WordPerfect For Windows Desktop Publishing Seminar. Palo Alto. OmniTrak Learning Systems. Call: (801)756-9932.

June 29–30 Mastering QuarkXPress 3.3 Class. Pleasant Hill. Contra Costa Office of Education. Call: (510)943-8332.

June 29–July 20 HyperCard Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

June 30 AccPac Plus Core Module Training/Overview Class. San Francisco. J.C. Lukrich & Co. Call: (415)905-6900.

June 30 Advanced Paradox 4.0/4.5 Class. San Francisco. The Dublin Group. Call: 1-800-464-8344.

June 30 Illustrator For Windows Class. San Francisco. Ciber Training Services. Call: (415)281-6100.

June 30 Intro To Freelance Graphics 2.0 Class. Santa Clara. The Dublin Group. Call: 1-800-464-8344.

June 30 Intro To Windows/QuickBooks Class. San Jose. InfoMind Computer Training Center. Call: (408)243-1121.

June 30 LAN Fundamentals Class. San Francisco. Ciber Training Services. Call: (415)281-6100.

June 30 Macintosh Network Administration Class. San Francisco. Ciber Training Services. Call: (415)281-6100.

June 30 WordPerfect For DOS Desktop Publishing Seminar. Newark. OmniTrak Learning Systems. Call: (801)756-9932.

June 30 WordPerfect/DOS Level II Class. San Francisco. Ciber Training Services. Call: (415)281-6100.

June 30–July 1 Expert 2D AutoCAD Workshop. Santa Clara. The Copper Connection. Call: (408)970-9838.

June 30–July 1 Microsoft Word 6.0 Workshop. Santa Clara. The Copper Connection. Call: (408)970-9838.

June 30–July 1 Professional Surface Modeling & Rendering Workshop. Santa Clara. The Copper Connection. Call: (408)970-9838.

June 30–July 21 Principles Of Animation Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

June 30 & July 7 Intro To ISDN Class. San Francisco. SFSU Extended Education. Call: (415)904-7700.

July

July 1 Intro To Lotus 1-2-3 3.4 Class. Santa Clara. The Dublin Group. Call: 1-800-464-8344.

July 1 Intro To Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

July 1 Intro To WordPerfect 6.0 Class. San Francisco. The Dublin Group. Call: 1-800-464-8344.

July 1 Microsoft Windows I Class. Oakland. California Computer Options. Call: (510)444-5700 ext. 8.

July 1 WordPerfect For Windows Desktop Publishing Seminar. Emeryville. OmniTrak Learning Systems. Call: (801)756-9932.

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Sun. Aug. 7 - SAN RAFAEL Marin Civic Center
Sun. July 17 - SACRAMENTO Scottish Rite Center
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Resources

July 2 CNE Hands-On Study Group. Oakland. Excel Micro Solutions. Call: (510)836-2040.

July 2 Intermediate Excel/Lotus/QuattroPro Class. San Jose. InfoMind Computer Training Center. Call: (408)243-1121.

July 3 Intermediate QuickBooks/PowerPoint Class. San Jose. InfoMind Computer Training Center. Call: (408)243-1121.

July 4–5 Novell 3.1x Advanced Administration Class. Oakland. MIS Services, Inc. Call: (510)208-5700.

July 5 IBM PC Clone Hardware Hands-On Class. Oakland. Excel Micro Solutions. Call: (510)836-2040.

July 5 Intro To PageMaker 5.0 Class. San Francisco. The Dublin Group. Call: 1-800-464-8344.

July 5 Intro To Quattro Pro For Windows 5.0 Class. San Francisco. The Dublin Group. Call: 1-800-464-8344.

July 5 Intro To Word For Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

July 5 Mastering Windows For Experienced Users Class. San Francisco. SFSU Extended Education. Call: (415)904-7700.

July 5 & 7 Beginning FileMaker Pro Class. San Francisco. Ciber Training Services. Call: (415)281-6100.

July 5–8 CAD/CAM With AutoSurf & AutoMILL Workshop. Santa Clara. The Copper Connection. Call: (408)970-9838.

July 5–15, 23 Intensive Music/Audio DSP & Spectral Modeling Synthesis Workshop. Stanford. Stanford University. Call: (415)723-4971.

July 5–August 2 Intermediate Macromedia Director Class. San Francisco. SFSU Extended Education. Call: (415)904-7700.

July 5–August 4 Network Technologies And Architectures Class. Santa Clara. UC Santa Cruz Extension. Call: (408)748-7375.

July 5–September 6 Multimedia Production Tools Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

July 5–September 13 Intro To VLSI And ASIC Design Class. Santa Clara. UC Santa Cruz Extension. Call: (408)748-7375.

July 6 Intro To Microsoft Excel Class. San Francisco. SFSU Extended Education. Call: (415)904-7700.

July 6 Intro To MS-DOS 6.2 Level 1 Class. Emeryville. Northwest Computer Systems. Call: Cathy Day, (510)653-0808.

July 6 Intro To Windows 3.1 Class. Emeryville. Northwest Computer Systems. Call: Cathy Day, (510)653-0808.

July 6–7 Implementing OLE 2.0 Containers And Objects With Visual C++ And The Microsoft Foundation Classes Section 1 Class. San Francisco. UC Berkeley Extension. Call: (510)642-4111.

July 6–7 PC Repair Two-Day Hands-On Class. Oakland. Excel Micro Solutions. Call: (510)836-2040.

July 6–8 AutoCAD System Administration Workshop. Santa Clara. The Copper Connection. Call: (408)970-9838.

July 6–20 Adobe Illustrator Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

July 6–August 3 Advanced QuickTime And Interactive Video Class. San Francisco. SFSU Extended Education. Call: (415)904-7700.

July 6–August 8 Intro To Data Communications Class. Santa Clara. UC Santa Cruz Extension. Call: (408)748-7375.

July 6–August 24 Design For Desktop Publishing Class. Santa Clara. UC Santa Cruz Extension. Call: (408)427-6620.

July 6–September 14 Intro To Database Management Systems Class. Santa Clara. UC Santa Cruz Extension. Call: (408)748-7398.

July 7 Intermediate Microsoft Excel Class. San Francisco. SFSU Extended Education. Call: (415)904-7700.

July 7 Intro To cc:Mail For Windows 2.0 Class. Santa Clara. The Dublin Group. Call: 1-800-464-8344.

July 7 Intro To Windows 3.1 Class. San Francisco. The Dublin Group. Call: 1-800-464-8344.

July 7 Paradox 4.5 For DOS/Windows Level 1 Class. Emeryville. Northwest Computer Systems. Call: Cathy Day, (510)653-0808.

July 7 Quattro Pro 5.0 For DOS/Windows Level 1 Class. Emeryville. Northwest Computer Systems. Call: Cathy Day, (510)653-0808.

July 7 The Internet: A Tool For Mediamakers Class. San Francisco. Bay Area Video Coalition. Call: (415)861-3282.

July 7–8 Photoshop Basics Class. Santa Clara. UC Santa Cruz Extension. Call: (408)427-6620.

July 7–8 Windows On Netware Seminar. Sacramento. Data-Tech Institute. Call: (201)478-5400.

July 7 & August 11 The World Of Internet News (Mac) Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

July 7–September 8 Information Systems Management: An Overview Class. Santa Clara. UC Santa Cruz Extension. Call: (408)748-7398.

July 8 Charting, Presentation Creation And Macros With Microsoft Excel Class. San Francisco. SFSU Extended Education. Call: (415)904-7700.

July 8 Computers For Dummies Seminar. Richmond. Network Computing. Call: (510)235-9766.

July 8 Director Master Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

July 8 Fox Pro 2.5 For DOS/Windows Level 1 Class. Emeryville. Northwest Computer Systems. Call: Cathy Day, (510)653-0808.

July 8 Intro To Excel 5.0 Class. San Francisco. The Dublin Group. Call: 1-800-464-8344.

July 8 Intro To Freelance Graphics For Windows 2.0 Class. San Francisco. The Dublin Group. Call: 1-800-464-8344.

July 8 Microsoft Excel For Windows Level I Class. San Francisco. Ciber Training Services. Call: (415)281-6100.

July 8 Networking For Dummies Seminar. Richmond. Network Computing. Call: (510)235-9766.

July 8 WordPerfect 6.0 For Windows Level 1 Class. Emeryville. Northwest Computer Systems. Call: Cathy Day, (510)653-0808.

July 9 Beginning Digital Editing With QuickTime Class. San Francisco. Bay Area Video Coalition. Call: (415)861-3282.

July 9 Desktop Manufacturing With AutoCAD & Roland Workshop. Santa Clara. The Copper Connection. Call: (408)970-9838.

July 9 Developing For WAIS Class. San Francisco. Center for Electronic Art. Call: (415)956-6500.

July 9 Rendering With AutoVISION Workshop. Santa Clara. The Copper Connection. Call: (408)970-9838.

July 9 Using The Internet Part 1: Introduction And Techniques, Section 2 (For Librarians) Class. UC Berkeley campus. UC Berkeley Extension. Call: (415)323-8141.

July 9–10 Production Management For Multimedia Class. San Francisco. SFSU Extended Education. Call: (415)904-7700.

July 10 Intermediate Digital Editing With QuickTime Class. San Francisco. Bay Area Video Coalition. Call: (415)861-3282.

July 11 Intermediate Quattro Pro 5.0 Class. Santa Clara. The Dublin Group. Call: 1-800-464-8344.

July 11 Intro To Access 1.1 Class. San Francisco. The Dublin Group. Call: 1-800-464-8344.

July 11 Intro To Lotus Organizer 1.1 Class. Santa Clara. The Dublin Group. Call: 1-800-464-8344.

July 11 Lotus 1-2-3 For DOS/Windows Level 1 Class. Emeryville. Northwest Computer Systems. Call: Cathy Day, (510)653-0808.

July 11 Shell Command For Programmers Class. Pleasanton. AT&T Technical Education Center. Call: 1-800-TRAINER, prompt 1, ext. 6564.

July 11 WordPerfect 6.0 For DOS Level 1 Class. Emeryville. Northwest Computer Systems. Call: Cathy Day, (510)653-0808.

July 11–12 Asymetrix Toolbook For Windows On The IBM PC Class. San Francisco. SFSU Extended Education. Call: (415)904-7700.

Resources

July 11–12 Database Tuning Class. San Francisco. UC Berkeley Extension. Call: (510)642-4111.

July 11–12 Novell NetWare NFS Class. Oakland. MIS Services, Inc. Call: (510)208-5700.

July 11–15 ISO 9000 Assessor/Lead Assessor Training Seminar. San Francisco. Perry Johnson, Inc. Call: Tom Parker, 1-800-479-2020.

July 11–19 QuarkXPress For Graphic Production: Beginning Class. Santa Clara. UC Santa Cruz Extension. Call: (408)427-6620.

July 12 Intro To Personal Computers Class. San Francisco. The Dublin Group. Call: 1-800-464-8344.

July 12 Intro To WordPerfect For Windows 5.2 Class. Santa Clara. The Dublin Group. Call: 1-800-464-8344.

July 12 Special Effects Software For QuickTime Class. San Francisco. Bay Area Video Coalition. Call: (415)861-3282.

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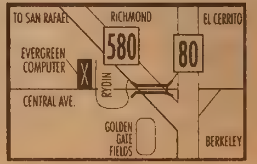

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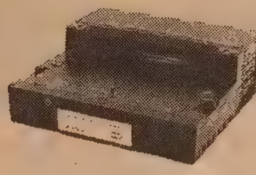

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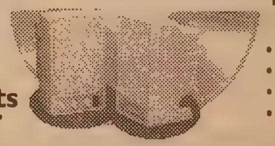

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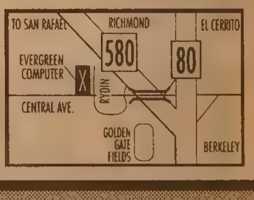

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Graveyard Shift BBS. (415)397-1038, (510)526-2338. 14,400. 100% adult files, Throbnet, Swingnet, Wildcat 3.9 RIP, 8 lines. [Exp. #124.]

Lambda. (415)572-2591, 755-9439, 364-9049; (510)268-9891. Adult, gay/lesbian, all welcome, chat, matching, voicemail. Free trial. [Exp. #124.]

Paul Revere Network. (209)472-0843; (408)947-7800 (main), 281-0725; (707)427-1310; (916)361-2827. 24 hrs., 9600. Nationwide 50+ node BBS network of grassroots firearms rights activists. [Exp. #126.]

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Comp-U-Ease. (408)286-8332. 28,800. Multiline, RIME email regional HUB, engineering, ACAD, soccer, English news daily. Sysop: Stuart Smith. [Exp. #124.]

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Eat My Shorts. (408)737-1885. 14,400. FidoNet, KinkNet, files, games, adult, etc. Sysop: Brew-Master. [Exp. #125.]

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Bay Area BBSes

By Kathleen Creighton

Online Around The Bay

It's getting progressively easier to get wired in around the Bay. Folks in the central Bay Area now have Internet access via California Online! while Contra Costa residents can use CCnet, and residents of Gilroy and South Santa Clara Valley can cook up a connection with garlic.com (South Valley Internet). And Santa Cruz's community Internet provider, Cruzio, finally makes it into this column!

California Online!

California Online!, a local BBS with phone access around the central Bay Area (Marin, East Bay, San Francisco), is our first BBS gateway directly onto the Internet. Primarily a chat and social board, California Online! has been undergoing major reconstruction to better serve both the BBS and Internet users.

Sysop Chris Ward, expecting a number of new Internet users, has set up a forum on the BBS side to discuss Internet tips and tricks, and has already conducted one real-time chat session for Internet questions. (For the Internet savvy, California Online! is a Major BBS, the same software as that used by FedWorld.)

Call in direct to the BBS for information:
San Francisco, Marin, parts of East Bay (415)331-4092 (high speed)
San Francisco, Peninsula, East Bay (415)834-9117
San Francisco, Peninsula, East Bay (415)834-9118 (high speed)
Northeast Bay, East Bay, parts of SF (510)232-0847
(North Bay expansion is planned)

or

telnet calon.com, sign on as guest (password guest), then telnet 199.4.94.2, which will drop you into the BBS area.

Personal Accounts $10.00 Month 1/hr./day
Personal Accounts $15.00 Month Unlimited time/calls
Business Accounts $38.00 Month Unlimited time/calls
SLIP/PPP $1/hr $20.00 minimum p/month (dialup)
SLIP/PPP $85.00 Full time
UUCP $15.00 Month Low volume
Initialization fee for Personal/Business Accounts: $15.00
California Online! (415)331-4090 (voice)

CCnet

I found this press release in my mailbox:

"CCnet is a regional network whose mission is to connect the Contra Costa community to the Internet. CCnet's goal is not only to bring high-quality Internet access to the area, but to foster a local communication infrastructure providing information services to private individuals, businesses, and government organizations of the Contra Costa county."

CCnet Connections

Getting connected to the Internet through CCnet is fast, easy, and affordable. Connections through CCnet include unlimited Internet access at one fixed monthly charge. There are no upload-download or usage charges.

CCnet Technology

CCnet is one of the first Internet service providers to offer dialup connections using the new V.FAST or V.34 protocol for connection speeds at 28,800bps. CCnet uses Hayes Optima 288 modems.

CCnet: Personal Accounts

A personal account with CCnet offers you connection to the Internet twenty-four hours a day, seven days a week. TOUR-GUIDE, CCnet's Menu, will simplify many of the things you can do with your account. If you are a UNIX pro, skip the menu and you can gain access to all the shells. Some of the popular services offered through your personal account: Email, Usenet, USA Today, talk and IRC, FTP, telnet, gopher, WWW.

For more info, dial (510)988-7140, Login prompt enter guest
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Continued

BULLETIN BOARDS cont.

[Exp. #124.]

Monterey Gaming System. (408)655-5555. 14,400 on all 28 lines. Free Internet email, live chat, contests, games. Free. [Exp. #124.]

The Mountain Mist BBS. (408)353-4866. 8-N-1, 24 hrs., 1200/2400/9600/ 14,400. Local and Intelec email. PCBoard 15.0/2. Specializing in legal files. OS/2, games, Windoze, Native Am., and other general interest files. Sysop: Christina M. Capurro. [Exp. #126.]

New! Online-Classifieds. (408)255-2436. 24 hrs. We only do ads: computer hardware, software, books, etc. Free reading. [Exp. #125.]

Nitelog BBS. (408)655-1096. 24 hrs., 300–16,800. DOS/Windows/OS2/UNIX/Mac and Win NT and adult files, 24 lines, 8.4GB. Sysop: Karl Van Lear. [Exp. #125.]

Paradise City BBS. (408)280-6630. 1200–57,600. Over 35,000 newest IBM and adult files, RIP EGA graphics, mouse support, email, games. Free full access on first call. Sysop: Jim Reed. [Exp. #124.]

The Beggar's Tomb
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• Adult Gifs
• Adult Internet Newsgroups

San Jose Advisor. (408)274-6004. 10 am–10 pm, 300–9600. Politically oriented, San Jose city and some state and federal info. [Exp. #125.]

San Jose Connection. (408)956-8819. 8-N-1, 24 hrs., 300–14,400. 2GB online, two CDs, running PCBoard, adult oriented, gay/straight. Sysops: Earl Faneuf and Manuel Martinez. [Exp. #126.]

The Silicon Matchmaker. (408)492-9700. 24 hrs., 14,400. 20 lines, email, chat, Internet mail, personal introductions. [Exp. #124.]

The Support Network BBS. (408)259-0297. 8-N-1, 24hrs., 1200–14,400. ADA Net, ABLEDATA database online, Trace Research Center Library, educational files, RIP graphics. Sysop: Frank Arnold. [Exp. #126.]

Thunder Mountain BBS. (408)266-4553. 8-N-1, 1200–14,400. Eight lines, chat, matchmaker, files, games, CD-ROM. Family oriented. Free. [Exp. #124.]

The Virtual Reality BBS. (408)246-5434. 8-N-1, 300–14,400. Games, files, and Net mail. Sysop: Jim Busby. [Exp. #126.]

VisionSoft BBS. (408)626-0302 (300–2400), 625-6580 (9600–14,400), 624-5879 (14,400–28,800). 10 lines. Chat forum, CD-ROM, multiuser online game, Usenet, multimessage, Internet pending. [Exp. #126.]

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The Warped Disk. (408)288-6890. 14,400. Four lines, files, CD-ROM, chat, forums, photo database, adult areas, RIP graphics, free RIPterm. Free. Sysop: Woody Musson. [Exp. #124.]

415

Anatomically Correct BBS. (415)856-8425. 24 hrs., 14,400. Adults only, discussions of adult issues, more than 100 X-rated stories. Massage parlor guide, "Cheri Chat" and "Horrorscope" doors. No GIF files. Free. Sysop: Howeird. [Exp. #124.]

A.S.D.I.P. (415)468-3886. 14,400. 31,000 files, over 10GB, adult issues. Sysop: [Exp. #126.]

The Baud BBS System. (415)343-5799. 14,400. RIP oriented (ANSI too), online RIP games, thousands of files. Free access. [Exp. #126.]

Bay Area Luv Connection. (415)822-7550. 24 hrs., 16 lines. Adult board. Fee, women free. Voice: (415)239-1028. Sysop: Ronni. [Exp. #126.]

Career Connections. (415)917-2129, 917-2125. 8-N-1. View and respond online directly to the recruiters. Telnet: career.com . Free. Sysop: S. Dave. [Exp. #126.]

Clipboard. (415)239-0454. 28,800. Pcboard, Clipper files, FidoNet/Intelec/Internet/OS2Net (Mac, job listings, for sale), and doors. Sysop: George Jereza. [Exp. #125.]

The CyberDen. (415)472-5527. 14,400. The worldwide alternative music and entertainment network, Mac/PC GUI, Usenet and Internet support. [Exp. #125.]

Fog City. (415)863-9697. 8-N-1. Gay & lesbian community/chat, matchmaking, CD-ROMs, games, multiline, 2.4GB. Since 1986. [Exp. #124.]

Games & Stuff BBS. (415)369-1110. 8-N-1, 24 hrs., 14,400. Lots of shareware games and utilities, adult files with reg. 30 min. free/day. [Exp. #126.]

Golden Gate Computer Society BBS. (415)457-2516. 24 hrs., 14,400. Four lines. 2GB of files, ILink, Cal-Link, Usenet and Internet email ($24/year). [Exp. #126.]

Home Buyer's Fair! Online. (415)570-7133. 24 hrs., 9600. Market, title, first-time home buyer information; current mortgage rates. [Exp. #125.]

Hotline Computers BBS. (415)349-5136. 14,400. Computer users subjects, 2.5+GB files, classifieds, online shopping. Free. [Exp. #124.]

IBBS West. (415)564-9996. 8-N-1, 24 hrs., 300–14,400. Five lines. PC & compatibles, Internet mail, shareware, utils., adult GIFs, two CD-ROMs, 13,000 files. Fee. [Exp. #126.]

The Informer BBS. (415)468-6713, 468-6714, 468-6715. 24 hrs., 2400–28,800. Intelec, FamNet, WildNet, Fido, OS/2 Net, Internet, Sci Fi Conf, operating systems, tech specs, and more. Sysop: John Custer. [Exp. #126.]

Key Software Products BBS. (415)364-9847. 5 pm–8 am M–F, 24 hrs. wknds. 1200/2400/9600. Tech support for the Last Byte Memory Manager. Internet email, fax-mail, shareware. Free. Sysop: Dan Lewis [Exp. #126.]

LegalNet. (415)454-0772. 14,400. Join the California online legal community—lawyers only! [Exp. #126.]

Marin Online. (415)457-1884. 14,400. The online community of Marin—travel online at 14.4 to beautiful Marin. Sysop: James Preston. [Exp. #126.]

The MIDI & Multimedia Exchange BBS. (415)771-1788. Music and multimedia and virtual reality data files and programs; .MOD, .MID, etc. Sysop: Walt Perko. [Exp. #124.]

Near Side BBS. (415)369-5063. 1200–14,400. Software support, many online games, growing transfer sections. Reg. requested. Sysop: Adam Tordoff. [Exp. #125.]

New Dork Sublime. (415)864-DORK, 255-NERD. 300–14,400. Subliminal news for new dorks everywhere, NIRVANAnet node 9:900/10. Sysop: Biffnix. [Exp. #126.]

NightSHADE Online Services. (415)456-2126. 8-N-1, 24 hrs., 2400–14,400. Multinode, 5+GB, XXX GIFs, games, applications, DOS, Windows, OS/2, 1000+ Internet conf., email-ftp. [Exp. #126.]

Recovery BBS. (415)255-2188. 8-N-1, 300–14,400 + HST. Dedicated to 12-step recovery programs (AA, NA, Al-Anon, CoDA, SAA, etc.). Fido 125/9. Sysop: Rich Gorin. [Exp. #125.]

San Francisco Digital BBS. (415)362-2227. 8-N-1, 14,400. Two lines. Online databases, build your own BBS online, online applications deployment. Free 20 min./day/caller. [Exp. #125.]

San Francisco PC Users Group BBS. (415)621-2609. 8-N-1, 24 hrs., 1200–14,400. Sysop: Richard Couture. [Exp. #125.]

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South Valley Internet

It was a busy week for press releases:

"South Valley Internet is an Internet Service provider for the South Santa Clara Valley in California. This encompasses the Morgan Hill, San Martin, Gilroy, Hollister and San Juan Bautista areas.

"The services provided include news feeds, email, and domain service, file transfers, and access to the global Internet including locating and downloading files and remote login access to other computer systems. South Valley Internet provides full service Internet connections (14.4kb, 56kb, and T1) to business users as well as its host dial service to individual and business customers.

"Our current rate for a personal shell account is $25/month. While this may seem a bit high as compared to systems in San Jose and other Bay Area communities, it is a local call. As the number of subscribers increase, we will lower prices accordingly."

South Valley Internet
P.O. Box 1246, San Martin, California 95046-1246
(408)683-4533 (voice)
Email: info@garlic.com Gopher: gopher.garlic.com

Cruzio

Cruzio is a community Internet provider in Santa Cruz, offering low-cost ($25/quarter) access. It also holds its offices open as a community network laboratory, to help users learn how to get around the Net in classes or on a drop-in basis.

Cruzio Services
903 Pacific Ave., #204, Santa Cruz, CA 95060
(408)423-1162 (voice), (408)423-9995 (data) ■

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Is Your Listing Missing?

Free user group and association listings are limited to the group's name, meeting information, contact name and phone number, and a ten-word description. They will be **deleted at six-month intervals** to ensure timeliness and accuracy of information.

Free BBS listings are limited to the board's name, phone number, hours, baud rates, parameters, and a ten-word description. Please let our readers know if your BBS is free or requires a fee. Because we have an ongoing problem of boards shutting down without telling us, much to the annoyance of would-be callers and the new phone number's owner alike, we will **delete these listings after they've run three months.** The notice at the end of the listing—Exp. #xxx—refers to the last issue number it will appear in unless renewed.

You can update or renew your listings at any time. If yours is missing, send your listing information to:

US Mail should go to: MicroTimes User Group, 3470 Buskirk Ave., Pleasant Hill, CA 94523. **Faxes** are welcome at (510)934-3958. **Email** can be sent to: microx@well.sf.ca.us, or MCI:MICROTIMES.

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(415)992-4320. 8-N-1, up to 14,400. Six networks, 345MB files, 10,000+ msgs., 35+ online games. Sysop: Christopher Jong. [Exp. #125.]

The Skull BBS. (415)637-9077. 28,800. 16 nodes, 20GB, hottest Asian/adult graphics, over 18 only, home of The Skull CD-ROM. Free trial. [Exp. #125.]

Solar Hydrogen BBS. (415)494-3116. 24 hrs., 1200–14,400. Alternative energy info—prosperity without pollution. Sysop: Howard H. Smith. [Exp. #124.]

Springboard. (415)327-4591. 14,400. Eight lines. Great discussions, free Internet forums and email, Reuters/AP news. Free 30-day trial. Sysops: Wendie, Mike, Lisa, Bob, and Scott. [Exp. #126.]

Symmetrics BBS. (415)382-6679. 8-N-1, 24 hrs., 1200–14,400. Online games, 600+MB of shareware programs. [Exp. #124.]

Uncle D's Directory. (415)364-3001. High-speed US Robotics. Computer online service for the mentally aroused. 1.5GB games, unprotects, RIME, classifieds, doors. Free. [Exp. #125.]

VidGame BBS. (415)742-6486, 2400–16,800; 742-6618, 28,800. Seven nodes, steamy adult GIFs, games, 7.5+GB/two CD-ROMs. Free Internet email and newsgroups. Sysop: George Hassmer. [Exp. #126.]

Wetware Diversions Public UNIX. (415)826-0397. 8-N-1, 24 hrs., 1200/2400. Eight lines. full UseNet news. Sysop: Eric Swanson (editor @wet.UUCP). [Exp. #126.]

Window World BBS. (415)931-0649. 24 hrs. For people who use Windows-type software; info, shareware, chat. Sysop: Bob Cram. [Exp. #126.]

Wine-Tasters' Bulletin Board. (415)459-1948. 24 hrs., up to 14,400. Gigabyte stroll through the wines of the US. Wine country events and more. Instant access. [Exp. #124.]

Worldnet Direct BBS. (415)974-7303 (14,400), 974-7305 (28,800). PC World back issues; shareware, macros/models from PC World Lotus edition; DOS, Windows, OS/2 files; and more. Sysop: Nancy Miller. [Exp. #126.]

510

& The Temple Of The Screaming Electron. (510)935-5845. 14,400. Two lines. As seen on *Hard Copy*. 442MB of unusual text. NIRVANAnet HQ. [Exp. #126.]

8-Bit Apple User Group BBS. (510)294-8052. 24 hrs., 300–2400. Apple II, UL/DL, email, games. Free. Sysop: Noel Anklam. [Exp. #126.]

Activist. (510)532-6248. Hot info fer realpolitik junkies, infobahn tyros, culture buzzards, and the toiling masses. Sysop: Walter Alter. [Exp. #126.]

Amiga Addicts Anonymous BBS. (510)680-2850. 8-N-1, 24 hrs., 1200–14,400. Amiga files only. Free. Sysop: Stanley R. Poland. [Exp. #124.]

Bay Area Mega Board. (510)247-8300, 12 lines @ 14,400; 247-8313, four lines @ 28,800. UltraChat, games, news, gen and adult nets, 35.16GB file area. Free and fee. Sysop: Sam Thompson. [Exp. #126.]

Bayline BBS. (510)886-9401. 14,400. Eight lines. African-American network, Internet email/Usenet, RIP graphics, games, discussions, and more. Sysop: A. Mitchell. [Exp. #126.]

Camphor Fountain BBS. (510)547-5741. 8-N-1, 24 hrs., 2400–14,400. Baha'iNet, SearchNet, seekers welcome, interfaith discussions, writing, home schooling, parenting. Free. Sysop: Linda Martin. [Exp. #125.]

Caxius BBS. (510)895-6961. 24 hrs., 300–14,400. Technical focus, FidoNet & PCC Net support, 60+ msg bases, active debate forum. Free. Sysop: Ed Correia. [Exp. #124.]

CompuPal. (510)538-2040. 8-N-1, 24 hrs., up to 28,800. Christian BBS, IBM PD, Bible files, 160MB, Bible echo, New Life Digest magazines, etc. Sysop: Richard Yim. [Exp. #125.]

Dr. Jack's Thing. (510)685-8522. 6:00 pm–8:00 am. 14,400. Lots of WAVs and GIFs, all the other stuff too. Thousands of new files, programs, utilities. Free/pay. [Exp. #124.]

Fred Haney & Sons BBS. (510)792-5119. 8-N-1, 24 hrs., up to 14,400. Shareware software. Free. [Exp. #124.]

Friendliest BBS. (510)432-7802. 8-N-1, 24 hrs., 300/1200/2400/9600. MS-DOS shareware, email, no password, no U/D ratios, no time limits. Free. Sysop: Doyle Goodman. [Exp. #125.]

Gold Diggers BBS. (510)568-7807,,,23,23 (must include ,,,23,23 to get BBS). 24 hrs., 2400–14,400. IBM, Atari ST, Amiga, Mac; files, door games, and messages. Registration $10 per year. Sysop: Harry Goldberg. [Exp. #125.]

The Golden Palace BBS. (510)237-5338. 24 hrs., 300–2400. Lots of msgs. and files, some online games, BADnet. Free. Sysop: Computer Wiz. [Exp. #124.]

The Hobby Shop BBS. (510)357-4125. 8-N-1, 28,800. Fun place to meet others; 1.5MB, adult scans, FidoNet. Free trial most areas. [Exp. #125.]

Maddog BBS. (510)483-0203. 24 hrs., 2400–14,400. 20,000+ DOS, Windows, OS/2 files. Adult GIF files. Online CD-ROM shareware, GIFs, etc. Free. Sysop: Troy Earp. [Exp. #124.]

Metropolis. (510)231-0353. 24 hrs., 2400/9600/14,400/19,200. DOS, Windows, OS/2; general purpose, a serious professional system; FidoNet, Usenet, and Internet email soon. Sysop: Michael Chen. [Exp. #125.]

Multimedia Download BBS. (510)713-2752. 1200–14,400. Photo/VHS digitizing service. MIDI, AVI, GIF, WAV, VOC, PCX, shareware. Free. [Exp. #125.]

The New-Ark BBS. (510)796-0947. 24 hrs., 300–9600. Tradewars, running on two CD-ROMs. Reg. required. Sysop: Hiram Wolf. [Exp. #125.]

Otoko Empire BBS. (510)370-6253. 24 hrs., 1200/2400. Specializing in gay topics, travel, international pen pals, Male GIFs. Sysop: Hiroshi. [Exp. #126.]

The Phantom Zone BBS. (510)538-9586. 8-N-1, 24 hrs., 300–14,400. Two lines. Online games, offline mail reader, multinode, friendly sysop. [Exp. #126.]

Planet Mirth. (510)786-6560. 14,400. Sinfully silly, Internet news, NIRVANAnet. [Exp. #126.]

realitycheck. (510)527-1662. 14,400. Instant access, coffee, cigars, tech, and text. NIRVANAnet. [Exp. #126.]

Smorgasbord BBS. (510)440-1125. Fremont, Sunnyvale, North San Jose. 70,000 files. Free prize draw. [Exp. #125.]

T123 BBS. (510)373-0873. 24 hrs., 9600. Two lines, IBM/Mac files, messages, teleconferencing. Free access. Sysop: Corey L. Nelson. [Exp. #124.]

Terrapin Transit BBS. (510)644-9328. 14,400. Seven lines. IBM, Amiga, Mac, Atari. Internet email, Usenet. Games, downloads, chat. Sysop: Sam Lewit. [Exp. #124.]

VA Listings. (510)637-1261. 24 hrs., 300–9600. Multiline. VA-owned homes for sale. Sysop: David Piersall. [Exp. #124.]

Windows Online. (510)736-8343. Largest Windows BBS, members receive free Internet mail, thousands of files. Free limited trial. [Exp. #126.]

Wishing Well BBS. (510)745-7901. 1200/14,400. 85+ online games, quality files, ANSI art, RIP graphics, matchmaker, and more. Sysop: MaryLou White [Exp. #126.]

707

The Party Line BBS. (707)588-8055. 14,400. Eight lines, six CD-ROMs, Internet email and Usenet newsgroups, chat link, 1.2GB of MS-DOS and Mac files. Sysop: Jami Chism. [Exp. #124.]

714

CWI-BBS. (714)870-1033. Entire CWI Disk Catalog plus six CD-ROMs. Free 30-min. browse. [Exp. #126.]

916

24th Street Exchange. (916)448-2483. 8-N-1, 24 hrs., 300–28,800. 27 lines, 21 CDs, FidoNet, USA Today, PC catalog, Internet email, chat. [Exp. #125.]

Intel Application Support. (916)356-3600. 24 hrs., 14,400. Technical files for designers using Intel components. 1-800-897-2536 master file list only. Free. Sysop: Franklin Wang. [Exp. #124.]

Pacific Exchange (Major) BBS. (916)965-0313. 8-N-1, 24 hrs., 2400–14,400. Eight lines. 35,000 files, 5GB, look for the Free stuff. $25/year. Sysop: Richard Dubois. [Exp. #126.]

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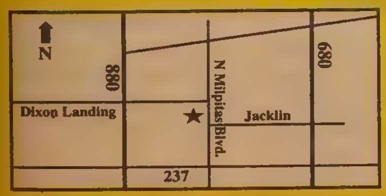

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USER GROUPS

AMIGA

AUM—Amiga Users Of Marin. Meetings: 3rd Wed., 7:30 pm, College of Marin Science Center, Rm. 191, Kentfield. Desktop Video SIG, Rm. 192, 6:00 pm. Call: (415)479-6717. BBS: (415)459-6621. [Exp. #126.]

AWEST Amiga Users In SF. Meetings: 2nd Wed., 6:30 pm, Excelsior Branch Public Library, 4400 Mission St. (near Ocean), San Francisco. Call: (415)584-8406. [Exp. #126.]

FAUG—First Amiga User's Group. Meetings: 1st Tues., 7:30 pm, HT Electronics, 275 N. Mathilda Ave., Sunnyvale. Q&A, new product demos, public domain software. Call: Mike Fischer, (415)855-9816, BBS (415)341-7566. [Exp. #129.]

RE-AMIGA Redwood Empire Amiga User Group. Meetings: 2nd Tues., 7:30 pm, Rohert Park Jr. HS, Rm. C-5, 7165 Burton Ave., Rohnert Park. Call: (707)523-9978. BBS: (707)539-6944. [Exp. #126.]

TOGA—The Other Group Of Amigoids. Meetings: Varying Sat., 12:30 pm, Milpitas Community Library, 40 N. Milpitas Blvd., Milpitas. An informal group to share ideas, PD software, and information. Call: Lawrence Brown, (408)984-6036; Randy Abel, (408)356-9405; toga@cup.portal.com . [Exp. #127.]

APPLE

Gravenstein Apple Users. Meetings: 3rd Sat., 10:00 am, Grant School, 200 Grant Ave., Rm. #B4, Petaluma. Call: BBS (707)794-9333, Jack McKenna sysop. [Exp. #129.]

PAUG—Peninsula Apple User Group. Meetings: 3rd Thurs., 7:00 pm, Ampex Cafeteria, 411 Broadway, Redwood City. Beginners and advanced, question and answer, new product demos, public domain software. Call: Kent Fillmore, (415)571-1433. [Exp. #129.]

P.I.E. Apple IIGS SIG. Meetings: 3rd Tues., 7:00 pm, Wilcox High School, Rm. #205, 3250 Monroe St., Santa Clara. Call: Philip Fontaine, (408)258-7641. [Exp. #129.]

San Leandro Apple Eaters Users Group. Meetings: 1st Thurs., 7:30 pm, San Leandro High School, Rm. #204, 2200 Bancroft Ave., San Leandro. Call: Stan (510)351-3973 or Ed (510)651-8521. [Exp. #129.]

SPC Apple User Group. Meetings: 2nd Tues., 7:30 pm, Fremont Main Public Library. The Society for Prevention of Cruelty to Apple Computers Users Group supports all Apple and Macintosh computers. Call: Dean Fearn, (510)881-9160. [Exp. #129.]

Stockton Apple Users. Meetings: 3rd Wed., 7:00 pm, Online Connecting Point Computer Store, 5756 Pacific Ave., Stockton. Call: Connie Fodor, (209)474-8508. [Exp. #129.]

Tri-Valley Apple Users. Meetings: 1st Wed., 7:00 pm, Glendale Federal Bank, 3101 Crow Canyon Place, San Ramon. Call: Jerry Carleton, (510)828-6237. [Exp. #129.]

ATARI

ABACUS—Atari Bay Area Computer Users Society. Meetings: 1st Sat. 12:00 noon, Potrero Branch Public Library, 2nd floor, 1616 20th St., San Francisco. DTP/MIDI/Video games SIGs. Call: Roger Sinasohn, (415)469-7924. [Exp. #129.]

Northern California Atari Computer Enthusiasts. Meetings: 3rd Tues., 7:30 pm, Pac Bell Bldg., 3260 Sebastopol Rd., Santa Rosa. Call: Kim Remick, (707)795-8173. [Exp. #126.]

AT&T

AT&T Computer Users Group. Meetings: 1st Wed., 7:00 pm, 50 Fremont St., 40th Floor—near 1st and Mission, San Francisco. Call: Jim Lansing, (415)885-6631 or Joe Mahoney, (415)584-6510. [Exp. #129.]

CAD

Southbay AutoCAD User Group. Meetings: Last Thurs. on even months, 6:00 pm. Food, prizes, and more. Call: Dean Villegas, (408)282-4448. [Exp. #126.]

COMMODORE

C=HUG (Commodore Hayward User Group). Meetings: 2nd Sat., 2:00 pm, Palma Ceia Park. (510)531-3734. [Exp. #128.]

CWEST Commodore 64/128. Meetings: 2nd. Wed., 6:30–8:45 pm, Excelsior Library, 4400 Mission, San Francisco. San Francisco. Call: (415)626-9946. [Exp. #126.]

DEC

BayLUG. Digital Equipment Computer User's Society Local User Group. For users of DEC and other hardware. Call: Rich Taylor, (408)776-4978. [Exp. #127.]

DESKTOP PUBLISHING

BMUG Desktop Publishing And Design SIG. Meetings: 3rd. Tues., San Francisco. Call: Les Cowan, (415)641-6033. [Exp. #129.]

Corel Ventura/Ventura Publishing User Group (San Mateo County VPUG). Meetings: 3rd or 4th Mon. (Sept.–May), 6:45 pm, 1800 Rollins Rd., Rm. 14, Burlingame. Call: Elinor Cruze, (415)366-5317. [Exp. #125.]

ELECTRONIC PHOTO-IMAGING

EPUG—Electronic Photo-Imaging User's Group. Meetings: 3rd Friday, 7:00 pm, Ewert's Photo-Scientific, 2090 Duane Ave., Santa Clara. Call: Rik Franz or Jerry Chapman, (408)727-3686. [Exp. #128.]

IBM AND COMPATIBLES

EastBay FOG. Meetings: 2nd Wed., 7:30 pm, Episcopal Church of St. John-in-Montclair, 1707 Gouldin Rd., Montclair. All microcomputers, MS-DOS, CP/M. Call: (510)653-2627. [Exp. #129.]

F.U.N. PC Users Group. Meetings: 2nd Tues., 6:00 pm, SyQuest Technology, 47071 Bayside Pkwy. (corner Gateway Blvd.), Fremont. Visitors welcome, no experience necessary. Call: (510)795-4286 #8. [Exp. #129.]

Golden Gate Computer Society. Meetings: 4th Mon., 7:00 pm, San Rafael Community Center, 618 B St., San Rafael. Free intro to computers class at 6:00 pm. Call: (415)454-5556. [Exp. #129.]

OS/2 BAUG Enterprise Computing SIG. Meetings: 3rd Mon., 7:00 pm, IBM, 425 Market St., 22nd floor, San Francisco. Call: Larry Baptist, (510)675-2466. [Exp. #129.]

San Francisco Business Computers. Meetings: 4th Tues., 5:30 pm. 110 Pacific #153, San Francisco. For those who use computers in business. Visitors $5. Call: Jordan Rosenberg, (415)788-5338. MCI Mail: 425-1545. [Exp. #127.]

San Francisco PC Users Group. Meetings: 3rd Tues., 6:15 pm SIGs, 7:30 pm General Meeting. St. Mary's Conference Center, 1111 Gough St., San Francisco. Call: (415)346-2644, events; Kendall Callas, (415)821-1310; Loyd Cribs, (415)751-5219. [Exp. #129.]

South Bay WordPerfect User Group. Meetings: 4th Tues., Saratoga Community Library. Free. Call: Scott Maiden, (408)253-4591. [Exp. #124.]

Stanford Palo Alto Area PC User Group. Meetings: Last Wed., 7:30 pm, Varian Auditorium, 3075 Hansen Way (off Page Mil Road), Palo Alto. Call: (415)329-8252. [Exp. #129.]

LEGAL

SF Bar Assoc. WordPerfect User Group. Meetings: 3rd Wed., odd-numbered months, noon, SF Bar Assoc. Boardroom, 7th Fl., 685 Market St. Brown bag meetings. Call: (415)421-5650. [Exp. #128.]

MACINTOSH

AHUG—Apple HyperCard User Group. Meetings: 3rd Thurs., Apple Computer, Bldg. 4, 4 Infinite Loop Way, Cupertino. Meetings include speakers and topics for beginners and experienced HyperCard and AppleScript users. Call: (408)974-1707. [Exp. #126.]

Diablo Valley Macintosh User Group (DVMUG). Meetings: 3rd Tues., 7:00 pm, Bancroft School, 2200 Parish Dr., Walnut Creek. Get together with Mac and Performa users. Enjoyable SIG meetings. Call: (510)827-5775. [Exp. #128.]

International Macintosh Users Group (IMUG). Meetings: 3rd Thurs., 7:00 pm. A forum for multilingual/multi-script computing. Call: Roger Sherman, (415)859-5146. [Exp. #129.]

PAUG—Peninsula Apple User Group. Meetings: 3rd Thurs., 7:00 pm, Ampex Cafeteria, 411 Broadway, Redwood City. Beginners and advanced, question and answer, new product demos, public domain software. Call: Kent Fillmore, (415)571-1433. [Exp. #129.]

SEF Macintosh SIG. Meetings: 3rd Tues., 7:00 pm, Apple Cafeteria, City Center 4, De Anza and Rodrigues, Cupertino. Sponsored by Software Entrepreneurs' Forum. Call: Jeff Cherniss, (408)358-5150 or Barbara Cass, (415)854-7219. [Exp. #129.]

Sequoia Macintosh Users' Group—SMUG. Meetings: 2nd week, 7:00 pm, Founders Hall, Rm. 118, Humbolt State University, Arcata. Call: (707)442-3520. [Exp. #127.]

SPC Apple User Group. Meetings: 2nd Tues., 7:30 pm, Fremont Main Public Library. The Society for Prevention of Cruelty to Apple Computers Users Group supports all Apple and Macintosh computers. Call: Dean Fearn, (510)881-9160. [Exp. #129.]

MULTIMEDIA

SEF Multimedia SIG. Meetings: 1st Thurs., 7:00 pm, Center for Software Development, 111 W. St. John St., Suite 200, Downtown San Jose. SIG of Software Entrepreneurs' Forum. Call: Ralph Gilman, (408)746-0551. [Exp. #129.]

NOVELL

Diablo Valley Netware Users Group. Meetings: 3rd Tues., 6:00 pm, Terraces building, 2300 Contra Costa Blvd., Conference Room, Pleasant Hill. Call: Leslie or Tom, (510)825-3275. [Exp. #129.]

OS/2

OS/2 Bay Area User Group. Meetings: 4th Mon., 7:00 pm. For anyone interested in OS/2. Presentations, product demos, questions and answers. Call: (415)755-3124. [Exp. #129.]

OS/2 Developers SIG. Meetings: 2nd Mon., 7:00 pm, IBM, 1055 Joaquin Rd., Mountain View. Call: (510)945-7565. [Exp. #129.]

POINT OF SALE

Point Of Sale User Group. Meetings: 1st and 3rd Sat., 2025 E. 12th St., Oakland. Call: (510)216-9335. [Exp. #125.]

PROGRAMMING LANGUAGES

SEF Visual BASIC SIG. Meetings: 2nd Thurs., 7:00 pm, Cubberley Community Center, 4000 Middlefield Rd., Rm. H-1, Palo Alto. Sponsored by Software Entrepreneurs' Forum. Call: Allan Colby, (415)851-4567. [Exp. #127.]

Silicon Valley Forth Interest Group. Meetings: 4th Sat., 10:00 am–5:00 pm, 230 Lincoln Centre Dr., Foster City. Call: Dr. C.H. Ting, (415)638-5669. [Exp. #129.]

TEXAS INSTRUMENTS

TI-99/4A. Meetings: 2nd Sat., Oakland. Call: Fred, (510)530-8335. [Exp. #128.]

UNIX

AT&T UNIX Computer Users Group. Meetings: 4th Wed., 6:30 pm, Location varies. Call: Thad Floyran, (408)985-7100 or Usenet: thad@cup.portal.com [Exp. #129.]

VIDEO TOASTER

Video Toaster User Group. Meetings: Last Thurs., 7:30 pm, HT Electronics, 275 N. Mathilda Ave., Sunnyvale. Special guests, equipment demos, hands-on workshops, plus info/tips on new System 3.0. Call: Andrew Timmins, (408)243-9233 (eve.). [Exp. #126.]

WINDOWS

SEF Windows SIG. Meetings: 1st Wed., 6:30 pm, Cubberley Community Center, Room H-1, 4000 Middlefield Rd., Palo Alto. SIG of the Software Entrepreneurs' Forum. $10 for nonmembers. Call: Fran Finnegan, (415)288-4400. [Exp. #129.]

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ASSOCIATIONS

American Association For Artificial Intelligence. Meetings: Individuals interested in learning about the use and application of AI. Call: (415)328-3123, fax: (415)321-4457, email: membership@aaai.org [Exp. #126.]

The Assembler Multitude. Meetings: 2nd and 4th Mon., 7:30 pm, University Lutheran Church, 1611 Stanford Ave., Palo Alto. An open discussion of new technical developments in many fields and how they relate to nanotechnology. Call: (408)974-6241. [Exp. #128.]

The Association For Customer Support Professionals (ACSP). Meetings: Quarterly. Dedicated to the development and furtherance of customer support as a distinct profession, to the growth of the support community, and to the improvement of support service. Call: (510)865-4515. Email: tao@well.sf.ca.us or 71333,2116@Compuserve.com [Exp. #126.]

Association For Women In Computing. Meetings: 1st Wed., 6:00 pm, Sinbad's Restaurant, Pier 2, San Francisco Embarcadero. $15 members, $20 guests. Call: (415)979-8450. [Exp. #128.]

Bay Area Video Coalition. A place for independent videomakers to communicate with each other and the larger media community. $10 for nonmembers. Call: Anne Etheridge, (415)861-3282. [Exp. #128.]

Black Data Processing Associates, Silicon Valley Chapter. Meetings: 4th Thursday, 6:30 pm, Amdahl Corp., Bldg. H, 1240 E. Arques Ave., Sunnyvale. National network of DP professionals, educators, students, and vendor reps. Call: Willie Mackey, (408)280-7624. [Exp. #128.]

Business Marketing Association. Meetings: 4th Wed., 11:30 am, Marriott Hotel on Great America Pkwy., Santa Clara. A professional organization for business-to-business marketing professionals; CBC certification, topical programs, seminars, job bank. Call: (408)365-9815. [Exp. #127.]

Foresight Institute. Meetings: 123 Fremont Ave., Los Altos. Information about and discussion of nanotechnology and other anticipated technologies. $35 annual membership. Call: (415)917-1122. [Exp. #128.]

Historical Computer Society. 10928 Ted Williams Pl., El Paso, TX 79934. A nostalgia group for enthusiasts of older computers and their history. Main forum is *Historically Brewed* newsletter; $18/yr., $3 sample. Call: David A. Greelish, (915)822-2683. [Exp. #127.]

Independent Computer Consultants Association, Northern California Chapter. Meetings: Dinner: 2nd Tues., 6:00 pm; Breakfast: 4th Thurs., 7:30 am; The City Club, 155 Sansome St., San Francisco. Open discussion, questions and answers. Call: (415)399-0305. [Exp. #129.]

Nanosystems Study Group. Meetings: every few months, 7:30 pm, Genentech Conference Center, Bldg. 5, South San Francisco. Call: Ted Kaehler, (408)974-6241. [Exp. #129.]

North Bay Systems Professionals. Meetings: 3rd Wed., 6:00 pm networking, 7:00 pm dinner, 8:00 pm speaker. Embassy Suites Hotel and Conference Center, 101 McInnis Parkway, San Rafael. NBSP provides a forum for systems professionals to grow and to benefit from a network of other like professionals. Call: (415)721-4409. [Exp. #129.]

Robotics Society Of America. Meetings: 1st Mon., 8:00 pm, Exploratorium Library. Call: Brad Smallridge, (415)550-0588. [Exp. #128.]

Society For Technical Communication, San Francisco Chapter. Meetings: 3rd Wed., 6:00, program at 7:00 pm. Stagecoach Restaurant, 44 Montgomery St., San Francisco. For technical writers, editors, and other technical communicators. Some meetings are dinner meetings, for which reservations are necessary. Call: (415)985-7121. [Exp. #124.]

Society For Technical Communication, Silicon Valley Chapter. Meetings: 4th Thurs. 5:30 pm refreshments, 6:30 pm dinner, 7:15 dessert. Sunnyvale Hilton, 1250 Lakeside Drive (off Lawrence Expressway at 101). Guest speakers, special interest groups, networking, job listings, newsletter. Call: (408)737-9426. [Exp. #127.]

Software Entrepreneurs' Forum. 3rd Wed., 6:30 pm, Elk's Lodge, 4249 El Camono, Palo Alto. Industry association dedicated to software developers and entrepreneurs, offering information and education on all facets of the software industry. Call: Barbara Cass, (415)854-7219. [Exp. #129.]

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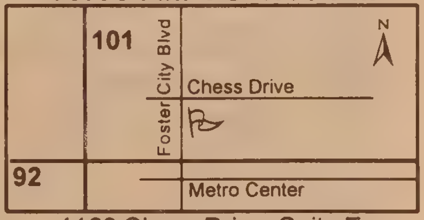

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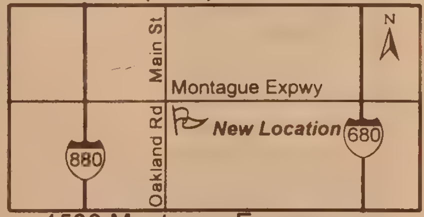

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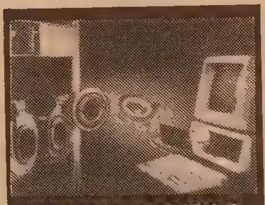

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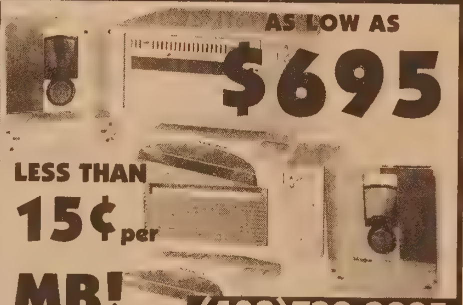

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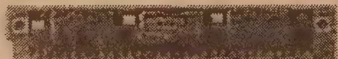

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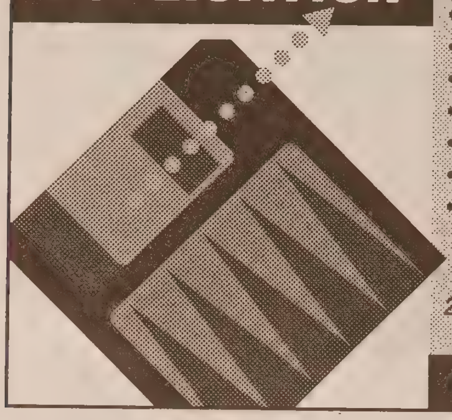

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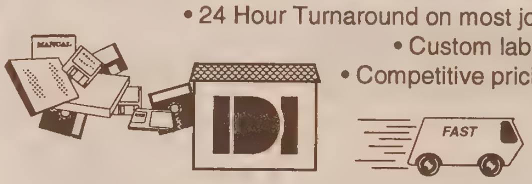

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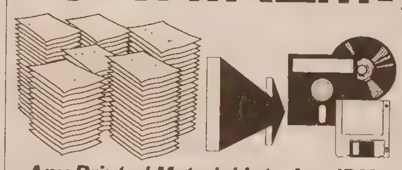

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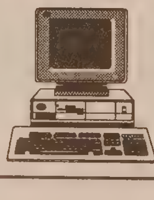

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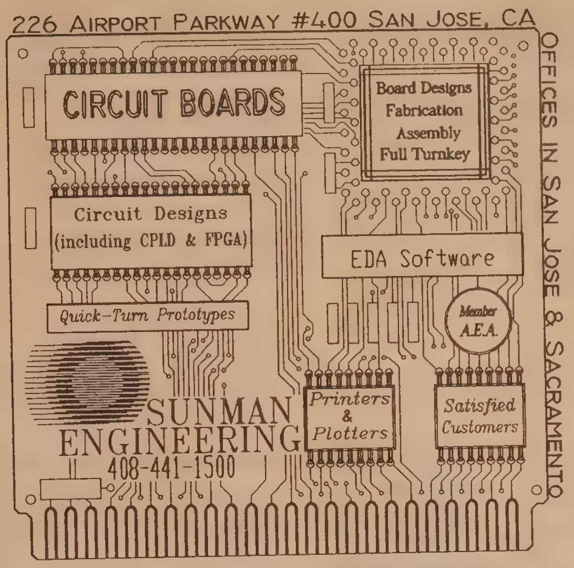

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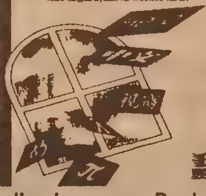

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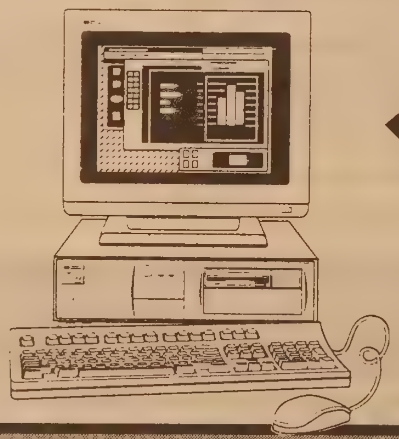

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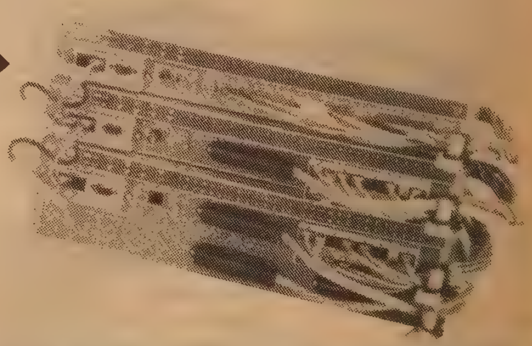

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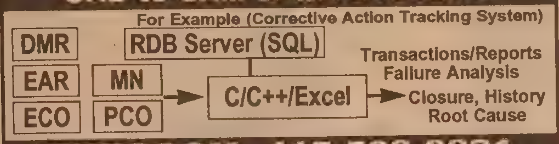

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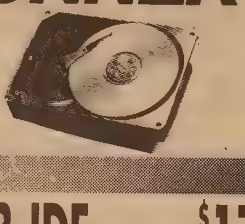

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210MB IDE........$179

14ms, CFA210

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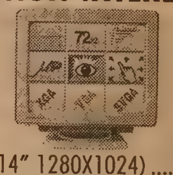
Specify Quantum, Specify Quality

1.08GB FAST SCSI-III 3.5 "X1"

512K Cache, 9.5ms

NEW EMPIRE $705

ADI NON-INTERLACE



ADI 3E+ (14" 1280X1024)	$269
ADI 3G (14" 1280X1024)	$279
ADI 4G (14" 1280X1024)	$359
ADI 5GLR (17" 1280X1024 Low-Radiation)	$689

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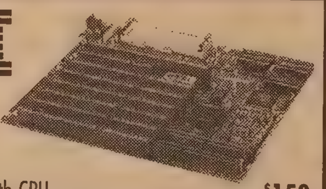
HIGH PERFORMANCE GRAPHICS ACCELERATOR

Revolutionary 64-Bit Architecture • DynaView 2D & 3D • Refresh Rate Up To 80Hz.

MGA ULT2VH Ultima VLB 2MB 1600x1200 Capability ...**$489**

IBM



486SLC2-50 ISA with CPU	$158
486SLC2-66 VLB with CPU & 64K Cache	$238
486SLC2-66 VLB with CPU & 128K Cache	$252
486BLC3-75 VLB with CPU & 256K Cache	$525

Built-in Math Co-Processor & VLB IDE I/O

*IIT 387-33MHz Math Co-Processor	$22

SVGA Non-Interlace MONITOR

(Model: CS-1404)

Non-Interlace 1024x768
14" SVGA .28mm dot pitch
$199 (one per customer, limited qty)
14" Monochrome Monitor $77

Hercules

The Fastest Real-World Windows Accelerator

Blazing 32-Bit Accelerator for Windows and AutoCad
High Refresh Rate
Dual Ported VRAM,
2-Year Warranty

HG720 Graphic VL Pro 2MB VLB........$339

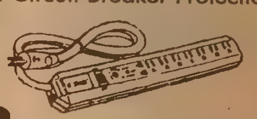
Media Magic ISP-16 Audio Board

16-Bit stereo recording and playback
5.5-48 Khz sampling rate
20-Voice OPL3 FM synthesis
AT-Bus CD-ROM Interface

$69 (Limited Qty)

6-OUTLET STRIP

with Circuit Breaker Protection



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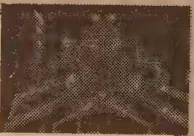
Double Speed

250ms Access Time
300Kbps Transfer Rate
Full MPC Compatibility
16-bits Audio Card

$128 (Limited Qty)

SPiDER. Graphics, Inc.



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The Power of Graphics Co-Processor

- IIT AGX-016: Co-Processor Accelerator
- Fast VRAM
- 135MHz High Color DAC up to 90MHz (N/I)
- Ultra High Resolution 1600x1200

1MB VRAM/2MB VRAM $177/235

TEKRAM Cache Controller	Blow Out
DC-600 ISA/IDE	$97
DC-620B EISA/IDE	$155
DC-680 VLB/IDE	$125
DC-800 ISA/SCSI	$185
DC-800 ISA/SCSI w/1MB	$210
DC-820 EISA/SCSI II	$325

SIMM MEMORY

1MB 70ns (30 PINS)	$35
4MB 70ns (30 PINS)	$144
4MB 70ns (72 PINS)	$150
8MB 70ns (72 PINS)	$310
16MB 70ns (72 PINS)	$615

CACHE MEMORY

32X8 20ns	$5
32X8 15ns	$6

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PRICED TO SELL

Graphics Ultra Pro 2MB VLB $289

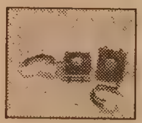
$4

MF-505 Mounting Kit

$3

MF-430 Bracket

$5



486 CPU Fan

GOVERNMENT, UNIVERSITY AND APPROVED CORPORATE P.O.'S WELCOME

- CPU and memory related products are not exchangeable or refundable
- Quantity is limited to stock on hand
- Not responsible for typos or technical errors
- All prices reflect cash only
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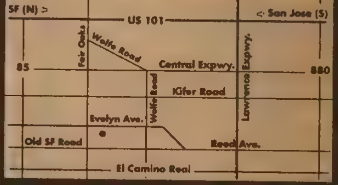

Versatile Features
Extraordinary Performance
Sleek Design
Always Reliable

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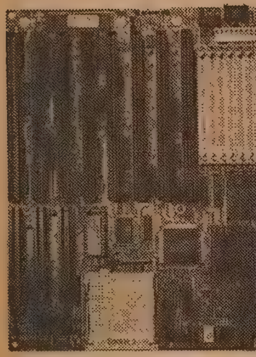
LYNX'S CUSTOMERS: IBM, INTEL, AMD, NASA, NAVAL, SFUSD, NetFRAME, TEKTRONIC...

Introducing the LYNX 486 VESA/PCI Local BUS mainboard

(Motherboards Designed and Manufactured in the U.S.A.)

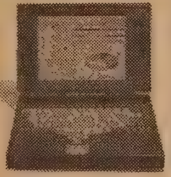


OEM and ODM Inquires Welcome.

	486VI	486V2	4GPV4 (Green-A)	4GVIP4 (Green-B)
Chipset	Contaq	Contaq	Contaq	Contaq
BIOS	AMI	AMI	AMI (Flash BIOS Optional)	AMI (Flash BIOS Optional)
Energy Green	NO	NO	YES	YES
Processors (SX/DX/DX2)	All Intel/AMD Cyrix (M7 series)	All Intel/AMD Cyrix (M7 series)	All Intel/AMD Cyrix (M7 series)	All Intel/AMD Cyrix (M7 series) **INTEL DX4-100**
Max. Memory	128MB (30 pins)	128MB (30 pins)	128MB (30 pins)	64MB **(72 pins)**
Max. Cache	256K	256K	1MB	1MB
Expansion Slots	2 VESA BUS 6-32 bits ISA BUS	2 VESA BUS 6-162 bits ISA BUS	3 VESA BUS 5-16 bits ISA BUS	**3 PCI BUS** **1 PCI/ISA BUS** 2 VESA BUS 3-16 bits ISA BUS
CPU Socket	Standard	Ziff (overdrive)	Ziff (overdrive)	Ziff (overdrive)
Bus Master	2 Slots	2 Slots	3 Slots	6 Slots
Dimension	8.7" X11"	8.7" X11"	8.7" X11"	8.7" X11"
Sale Price 256K Cache	**$120**	**$130**	**$140**	**$180**

1 YEAR PARTS/3 YEARS LABOR/LIFETIME TECH SUPPORT LIMITED WARRANTY

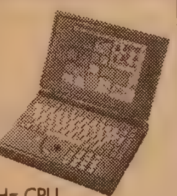
GeoBook Notebook



- 486SX-33MHz Upgradable to DX/DX2)
- 4MB RAM (Max. 20MB)
- 1.44MB Floppy Drive
- 120MB Hard Drive
- 9.5" VESA Local Bus Video
- Built-in PCMCIA drive
- Built-in 16mm Trackball
- Built-in 12 Num Key Pad
- NiCad Battery, AC/DC Adapter

Monochrome	$1365
STN Dual Scan Color	$1940
TFT Active Color	$2935

Gallop C6000 Notebook



- 486SLC-33MHz CPU
- 4MB RAM
- 1.44MB Floppy Drive
- 120MB Hard Drive
- 9.5" VESA Local Bus Video
- Built-in SCSI Interface
- Built-in 16mm Trackball
- Built-in 12 Num Key Pad
- NiCad Battery, AC/DC Adapter

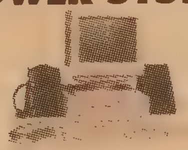
Monochrome	$1255
STN Dual Scan Color	$1835

LYNX 486 Multimedia VLB Bus-Master CAD System

- LYNX 486DX-33 VL Board 128K
- 4MB RAM 60ns SIMM Installed (Max 128MB) on board, CPU is upgradable to DX2-66...)
- IDE I/O VLB (2FD/2HD, 2S,1P,1G)
- SVGA Card VLB 1MB
- Teac 1.2MB FDD, Teac 1.44MB FDD
- 210MB IDE HDD Drive
- 14" 1024x768 SVGA Monitor
- Mini Tower Case w/200W Power Supply
- 101 Keys Enhanced Keyboard, serial mouse
- Double Speed CD-ROM & 16 Bit Audio Card
- 7 CD Titles and a pair of speakers

$1299

DX4-100MHZ POWER SYSTEM



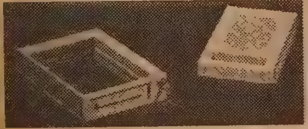
New LYNX
DX4-100MHz Multimedia System

- Upgradable to Pentium • 425MB HDD • 4MB RAM Upgradable to 32MB • Internal High-Speed Fax/Modem 14.4Data, Fax w/57600 throughput • 32 Bit Local Bus 1MB Graphics card • Internal CD Reader, double Speed, multisession, Photo CD compatible • MS DOS 6.21, MS Windows 3.10 • 16 Bit Stereo Sound Card
- Software and speakers
- Tower Case

$2199

Removable Frame

for 3.5" IDE HDD
(with security key)



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Epson Dual Drive Combo	$94
3 1/2 HD Diskettes	.28ea
IDE I/O VLB	$18
Mini Tower Case w/PS	$39
Med Tower Case w/PS	$56

EVERYDAY LOW PRICES

MONITORS

14" MONO/VGA MONO Monitor	$89/104
14" SVGA MONITOR INT .28/.39	219/192
ADI/TOUCH Monitor(See Monthly Specials)	
NANAO	
F550i (17" 1280x1024 .28 2nd inv.)	845
F550iw (17" 1280x1024 .28 75Hz)	1035
T560i (17" 1280x1024 .26 TRIN.)	1585
T660i (20" 1280x1024 .31 72Hz)	2295
F750 (21" 1280x1024 .31)	1989
NEC	
3FGe (15" 1024x768 .28 NI)	564
4FGe (15" 1024x768 .28 NI)	620
5FGe (17" 1024x768 .28 NI)	995
5FGp (17" 1280x1024 .28 NI)	1129
6FGp (21" 1280x1024 .28)	2199
SONY	
1430 (14" 1024x768 .25 NI)	529
1604S (17" 1024x768 .25 NI)	898
1730 (17" 1024x768 .25 NI)	965
17SE1 (17" 1600x1280 .25 NI)	1145
VIEWSONIC	
V6E (14" 1024x768 .25 NI)	276
V15E (15" 1024x768 .28 NI)	375
V15 (15" 1280x.1024 .28 NI)	446
V17 (17" 1600x.1280 .28 NI)	938
V17G (17" 1280x1024 .28 NI)	788
V8 (20" 1280x.1024 .28 NI)	1458
V20 (20" 1600x.1280 .28 NI)	1575
V21 (21" 1600x.1280 .26 NI)	1824

KEYBOARDS, MICE & MODEMS

MaxiSwitch 101 Keyboard	$34
KeyTronic 101 Keyboard	29
Focus FK9000	59
MS DOS 6.2 (w/System Purchase)	50
Leadgen Mouse (Ser)	10
2400 bps Modem (Int/Ext)	32/68
96/24 Fax Modem (Int.)	65
14400 Fax Modem Send/Rec. (Int./Ext.)	130/150

CONTROLLERS

Misc	
IDE ISA 2FD/2HD Controller	$12
IDE-I/O ISA 2FD/2HD W/2S/1P/1G	14
IDE-I/O VLB 2FD/2HD W/2S/1P/1G	24
AT I/O 2S/1P/1G	12
Parallel/Serial Card	12/12
Adaptec SCSI	
1522 16 Bit 7HD/2FD Kit	145
1542C Bus Master/Complete Kit	175/240
1542C+ Bus Master Kit w/Corel SCSI	312
2742 EISA Kit 14hds	395
2842 VESA Kit Fast SCSI II	325
Buslogic SCSI	
BT542 Busmaster SCSI-II Kit	199
BT445S VESA SCSI-II Kit	275
BT545KT Bus Master Fast SCSI	209
BTB742KT/747AK SCSI-II Kit	315/365
Promise	
DC-4030 ISA IDE Cache	128
DC-200M IDE w/512K	129
DC-420 VLB IDE w/512K	129
Teco	
DC-600 ISA IDE Cache	97
DC-620 EISA IDE Cache	155
DC-680 VLB IDE Cache	125
DC-820 EISA SCSI-II Cache	325
Ultrastor SCSI	
14F FD/HD (10MB/sec)	195
24F EISA w/64K (33MB/sec)	359
34F VESA Local Bus	265

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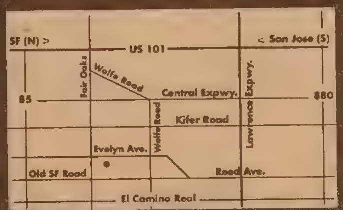

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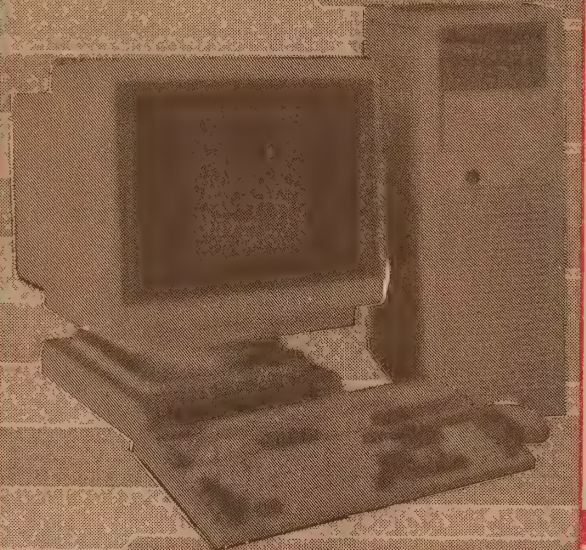
At PARADINE, we are computer USERS, not just sales people and system builders. With our real world experience with a variety of applications, we can configure a system to exactly meet your needs for performing every task you expect and more. With the best cost performance ratio. Also we load and configure any software you give us on your system before you pick it up at no additional charge. This allows you use of all your applications with your new PARADINE system the minute you get it. Hassle Free Advice and Sales from People who truly Understand the needs of a Computer User.



MICRONICS PENTIUM SYSTEM

17" Monitor, 16MB, 540MB HD PCI

Plenty of Performance and features for Heavy Windows OS/22 and CAD Applications. This system is configured with Name Brand Components with Reputations of Reliability and Compatibility

- MICRONICS 64-Bit 60MHz or 66MHz Motherboard
- 256K External Cache
- INTEL PENTIUM 60MHz or 66MHz 64-Bit Processor
- 16MB 72-Pin SIMMS RAM
- Built-In PCI 32-Bit IDE 2FD/2HD Controller
- Built-In 2 16550 Serial & Parallel I/O Ports
- 540MB Maxtor MXT-540AL 8.5ms IDE Hard Drive
- Matrox MGA II PCI 1600x1280 w/2MB VRAM
  (64-Bit Graphics - Over 90M Winmarks!)
- Viewsonic 17 1600x1280 17" .28 76Hz Flat Monitor
- TEAC 3.5" 1.44MB and 5.25" 1.2MB Floppy Drives
- Maxiswitch or Focus 101 Key Enhanced Keyboard
- Deluxe Full Tower w/300W, 2 Fans, & Side Doors
- MS-DOS 6.21 w/Disks & Manual
- MS-Windows 3.11 w/Disks & Manual
- Microsoft Mouse v2.0 or Logitech Mouseman

60MHz System $4195 66MHz System $4395

INTEL PENTIUM SYSTEM

15" Monitor, 8MB, 540MB HD PCI

Fast and Feature Packed - This system will FLY through even the largest applications with enough speed to satisfy any Power User! Pentium Technology at an Unbelievably Low Price!

- INTEL 64-Bit 60MHs or 66MHz Motherboard
- 256K External Cache
- INTEL PENTIUM 60MHz or 66MHz 64-Bit Processor
- 8MB 72-Pin SIMMS RAM
- PCI 32-Bit IDE 2FD/2HD Controller Card
- 2 Serial & 1 Parallel I/O Ports
- 540MB Maxtor MXT-540AL 8.5ms IDE Hard Drive
- Diamond Stealth/32 PCI SVGA Card w/2MB VRAM
- MAG DX15F or Viewsonic 15e .28 15" Flat Monitor
- TEAC 3.5" 1.44MB and 5.25" 1.2MB Floppy Drives
- Maxiswitch or Focus 101-Key Enhanced Keyboard
- Mid Tower Case w/250W Power Supply
- MS-DOS 6.21 w/Disks & Manual
- MS-Windows 3.11 w/Disks & Manual
- Microsoft Mouse v2.0 or Logitech Mouseman

SCSI SYSTEM ADD: **$195**

60MHz $2875 66MHz $2975 90MHz $3325

ASUS 486 PCI SYSTEM

15" Monitor, 8MB, 345MB HD PCI

This is an ideal system for High Performance Windows use. With its 486DX2-66MHz Processor, 32-Bit Windows Accelerator, and the PCI Architecture, this system will quickly glide through even the most demanding Windows Applications.

- ASUS 486DX2-66 PCI Motherboard w/256K
- INTEL 486DX2-66MHz Processor
- 8MB 72-Pin SIMMS RAM
- Built-In PCI 32-Bit IDE 2FD/2HD Controller
- Built-In 2 16550 Serial & 1 Parallel I/O Ports
- 345MB Maxtor or 350MB Western Digital IDE Hard Drive
- Diamond Stealth/32 PCI SVGA Card w/2MB VRAM
- MAG DX15F or Viewsonic 15e 15" .28 Flat Monitor
- TEAC 3.5" 1.44MB and 5.25" 1.2MB Floppy Drives
- Maxiswitch or Focus 101-Key Enhanced Keyboard
- Mid Tower Case w/250W Power Supply
- MS-DOS 6.21 w/Disks & Manual
- MS-Windows 3.11 w/Disks & Manual
- Microsoft Mouse v2.0 or Logitech Mouseman

Call For DX4 Systems

$2295

MICRONICS 486 VLB SYSTEM

17" Monitor, 16MB, 1GB SCSI HD

The perfect system for CAD and Heavier Windows Users, with the power and storage to meet any software requirement. Packed with the most advanced name brand components available, this system offers unsurpassed speed, performance, and reliability!

- MICRONICS 486DX2-66 VLB Motherboard w/256K
- INTEL 486DX2-66MHz Processor
- 16MB 72-Pin SIMMS RAM
- Adaptec 2842/VL 32-Bit Vesa LB SCSI Controller
- 1.0GB Conner or Seagate SCSI Hard Drive
- Matrox MGA II VLB 1600x1280 w/2MB VRAM
  (64-Bit Graphics - Over 90M Winmarks!)
- Viewsonic 17 1600x1280 17" .28 76Hz Flat Monitor
- TEAC 3.5" 1.44MB and 5.25" 1.2MB Floppy Drives
- Maxiswitch or Focus 101-Key Enhanced Keyboard
- Deluxe Full Tower Case w/300W, 2 Fans, & Side Doors
- MS-DOS 6.21 w/Disks & Manual
- MS-Windows 3.11 w/Disks & Manual
- Microsoft Mouse v2.0 or Logitech Mouseman

$4495

NICE "GREEN" 486 VLB SYSTEM

15" Monitor, 8MB, 345MB HD

Configured with components with plenty of power for Serious Computing, this system also has the added benefit of "Green" Power Conservation Technology

- NICE "Green" 486DX2-66 VLB Motherboard w/256K
- INTEL 486DX2-66MHz Processor
- 8MB 1x9 SIMMS RAM
- VLB 32-Bit IDE Card w/2 Serials/1 Parallel /1 Game I/O
- 345MB Maxtor or 350MB Western Digital IDE Hard Drive
- Kelvin/64, Stealth/24 or F1280/VL VLB Cards w/1MB
- Viewsonic 15 "Green" 15" 76Hz .28dp Monitor
- TEAC 3.5" 1.44MB and 5.25" 1.2MB Floppy Drives
- Maxiswitch or Focus 101-Key Enhanced Keyboard
- Mid Tower Case w/250W Power Supply
- MS-DOS 6.21 w/Disks & Manual
- MS-Windows 3.11 w/Disks & Manual
- Microsoft Mouse v2.0 or Logitech Mouseman

Call For DX4 Systems

$2175

NICE "GREEN" 486 VLB Jr.

Low Cost Energy Saving System–Perfect for Home Use!

- NICE "Green" 486DX VLB Motherboard w/256K
- INTEL 486DX-33MHz Processor
- 4MB1x9 SIMMS RAM
- VLB IDE Card w/2 Serials/1 Parallel /1 Game I/O
- 345MB Maxtor IDE Hard Drive
- F1280/VL or Stealth/24 VLB Card w/1MB
- Viewsonic 6e NI 14" .28dp SVGA Monitor
  (w/ Energy Saving Feature)
- TEAC 3.5" 1.44MB and 5.25" 1.2MB Floppy Drives
- Maxiswitch or Focus 101-Key Enhanced Keyboard
- Mid Tower Case w/250W Power Supply

486DX2-66 Add $150

$1575

ALARIS 486 BL3-75 VLB

Low Energy & Faster Than 486DX2-66!

- ALARIS 486BL3 VLB Motherboard w/256K
- IBM BL3-75MHz Processor
- 4MB 72-Pin SIMMS RAM
- Built-In VLB IDE Card w/2 16550 Serials/1 Parallel /1 Game I/O
- 350MB Western Digital IDE Hard Drive
- F1280/VL or Stealth/24 VLB Card w/1MB
- Viewsonic 6e NI 14" .28dp SVGA Monitor
- TEAC 3.5" 1.44MB and 5.25" 1.2MB Floppy Drives
- Maxiswitch or Focus 101-Key Enhanced Keyboard
- Mid Tower Case w/250W Power Supply
- MS-DOS 6.21 w/Disks & Manual
- MS-Windows 3.11 w/Disks & Manual
- Microsoft Mouse v2.0 or Logitech Mouseman

3 Years Parts Warranty!
(Does Not Include Monitor)

$1695

MULTI-MEDIA SYSTEM

w/Sound Blaster 16 & Dual Speed CD Package
Low Cost Full Multi-Media System

- NICE "Green" 486DX VLB Motherboard w/256K
- INTEL 486DX-33MHz Processor
- 4MB1x9 SIMMS RAM
- VLB IDE Card w/2 Serials/1 Parallel /1 Game I/O
- 345MB Maxtor IDE Hard Drive
- F1280/VL or Stealth/24 VLB Card w/1MB
- Viewsonic 6e NI 14" .28dp SVGA Monitor
- TEAC 3.5" 1.44MB and 5.25" 1.2MB Floppy Drives
- Discover 16 Kit w/SB 16, Panasonic Dual CD-ROM, Speakers, Joystick, & CD Titles
- Maxiswitch or Focus 101-Key Enhanced Keyboard
- Mid Tower Case w/250W Power Supply
- Microsoft Mouse v2.0 or Logitech Mouseman

486DX2-66 Add $150

$1845

DELUXE MULTI-MEDIA SYSTEM

Optimized for Multi-Media Applications Requiring Higher System Performance and Capacity

- NICE "Green" 486DX VLB Motherboard w/256K
- INTEL 486DX-33MHz Processor
- 8MB1x9 SIMMS RAM
- VLB IDE Card w/2 Serials/1 Parallel /1 Game I/O
- 345MB Maxtor IDE Hard Drive
- F1280/VL or Stealth/24 VLB Card w/1MB
- MAG DX15F or Viewsonic 15e NI 15" .28dp SVGA Monitor
- TEAC 3.5" 1.44MB and 5.25" 1.2MB Floppy Drives
- Maxiswitch or Focus 101-Key Enhanced Keyboard
- Pro Audio Spectrum 16 Sound Card
- Toshiba 3401 330KB/Sec 200ms Dual Speed CD-ROM w/Amplified Speakers
- Compton's Encyclopedia CD-ROM
- Mid Tower Case w/250W Power Supply
- MS-DOS 6.21 w/Disks & Manual
- MS-Windows 3.11 w/Disks & Manual
- Microsoft Mouse v2.0 or Logitech Mouseman

486DX2-66 Add $150

$2395

SYSTEM UPGRADES

4MB RAM Upgrade	$165
8MB RAM Upgrade	$330
245MB to 340MB	$50
340MB to 540MB	$150
F1280/VL to Viper	$220
Stealth 32 to Viper	$195
Viper to Mag II PCI	$50
Viper to Mag II VLB	$90
V6e to V15e	$100
V15e to V15	$65
V15 to V17G	$390
V17G to V17	$150
Nice to Micronics VLB	$150
Asus P5 to Micronics	$450

Please Call For Pricing of other System Upgrades or Complete System Quotes!

OPTIONAL ADD-ONS & UPGRADES

HARD DRIVES

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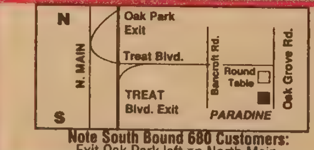

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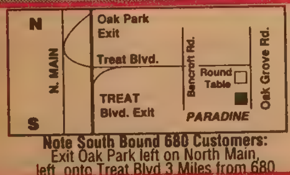

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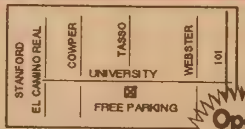

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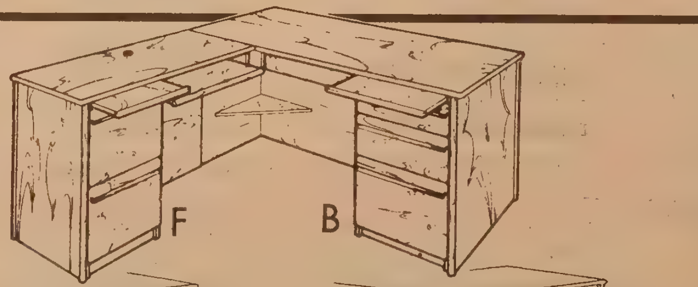

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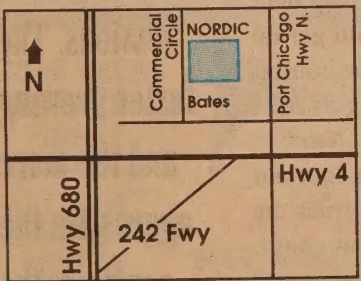

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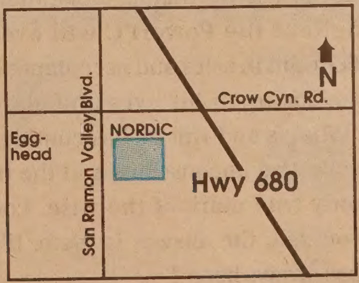

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How The Computer Business Affects Us All

It's not often that I go to my friend Harry Drabin's Mystic Temple in Los Angeles. I last went over a year ago, and the visit had worldwide ramifications, the true cause of which has never before been revealed.

It all started when the famed Bay Area channeler Ajax One (aka David Edward Lake) was going to reveal truths about computer marketing. I was about to do my monthly *MicroTimes* column and thought this would be a great angle. (As it turned out, I've been saving the story in the computer ever since, fearing the consequences of making it public.)

The Return Of Tom Watson

Ajax One is amazing. Under a trance he can channel thirty or forty different people—both alive and dead—with whom he's made contact in the last few years. His predictive capability is phenomenal and many corporations use him religiously when they are in a pinch.

The air was ripe with pollution. Inside the temple was a pond; on the pond was a boat, in which we sat in a semi-circle. Ajax One sat in the lotus position on a painted orange crate before us with his eyes closed and his palms up.

Within a few minutes he started to quiver and twitch. Suddenly his mouth opened and a weird deep voice intoned: "I'm Tom Watson Senior! I'm here to reveal the ultimate truth. You may ask me any questions."

A woman from Motorola who asked me not to use her name spoke first. "Do you believe the PowerPC will overtake the Pentium in sales and acceptance?"

Ajax open his eyes and glared at her. "What is and will be has confluence in the collective unconscious and the truth is the only true mark of the wise. Look within yourself, the answer is there. It's where it has always been."

The entire audience, mostly New Age wackos, said, "Wow! Heavy!"

I figured I was missing something. I spoke up: "Is that a yes or a no?" The audience groaned as if I was some sort of rube.

Watson rose. "I'll tell you young punks what's wrong with IBM. That's what you want to know. That's what you want to ask, right? Well, the company is run by a bunch of wimps! In my day it was run by weasels and we kicked butt. It sickens me to see that scrawny Gill Bates at Microsoft..."

"Bill Gates. His name is Gates."

"*Whatever!* It sickens me to see that bastard take our business away. We used to follow around salespeople and underbid them. We could cut them off, ruin their business. Now we're begging for work. It makes me want to puke! All the time Bates is laughing at us and we don't even care to respond... Where's Frank Cary when we need him?"

The Disharmonic Convergence

A moderator, standing next to Ajax One, held her hand up. "We will now begin the convergence process."

I turned to the PR woman sitting next to me and asked what *that* meant. She shrugged her shoulders. The guy next to me nudged me and whispered. "It means we're going to become Tom Watson, Sr. on the third cosmic plane. That's unless he changes to someone else before the process is complete."

The PR woman overheard this guy and said, "Neat!"

The moderator waved her hand slowly in front of her face. "Join hands, please."

The PR woman and the guy on my right grabbed my hands before I could get up and leave. As if by some cosmic coincidence the boat started rocking as Ajax jumped to his feet and screamed, "*Now!*"

Two enormous lightning bolts shot out of him, one from each hand, and struck the people at the ends of the human chain. The electricity shot through each of us and made everyone's hair go straight up. Everyone screamed, let go of each other, and blew on their hands, which were now smoking!

The channeler shook his head. "It's peculiar, but when I channel a company founder like that it releases some sort of pent-up hostility into the audience. It's as though the aggressive aspect of the person, living or dead, comes out in these sessions. The faster growing and the more aggressive the company, the worse it gets."

I looked around. Everyone had a mean smirk on their faces. I felt mean. Suddenly, without any provocation, a huge fight broke out, with everyone punching and kicking and throwing things at each other. Some big fat guy I didn't know swung at me and hit the PR woman straight in the face. She jumped up with a sneer and jumped on the fat man's back and scratched at his eyes. An executive from Intel slammed a large overstuffed chair into the woman, shattering the chair and sending her to the floor.

The whole boat was now rocking as the fight continued. The channeler, meanwhile, had awoken and panicked at what he saw. He whispered something to his assistant, the two of them joined hands, and within a few seconds a large fireball emerged from between them and exploded into fragments. Pieces of it hit everyone in the room, returning us all into normal people.

"What the heck happened?" I asked.

The channeler shook his head. "It's peculiar, but when I channel a company founder like that it releases some sort of pent-up hostility into the audience. It's as though the aggressive aspect of the person, living or dead, comes out in these sessions. The faster growing and the more aggressive the company, the worse it gets."

"You can do living or dead people?"

"Yes, I often tap into the unconscious of the living and get advice they do not know they even are giving. There's no difference when you're on the super plane of the great unknown."

The coordinator spoke. "Ajax will demonstrate this ability for you by channeling a living person: Bill Gates."

We all looked around at how badly beaten we all were and everyone immediately ran out of the place as fast as we could.

And that, ladies and gentlemen, was the real beginning of the LA riots—no matter what they tell you on TV. ■

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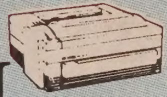

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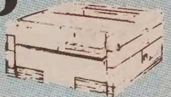

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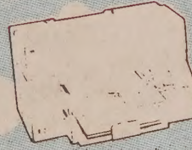

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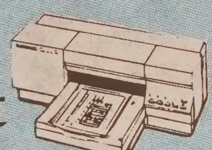

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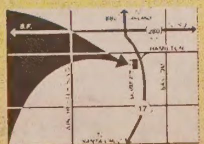

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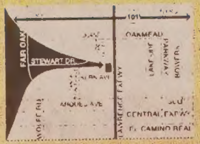

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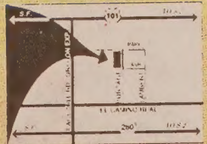

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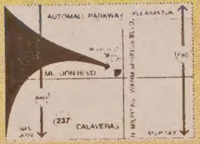

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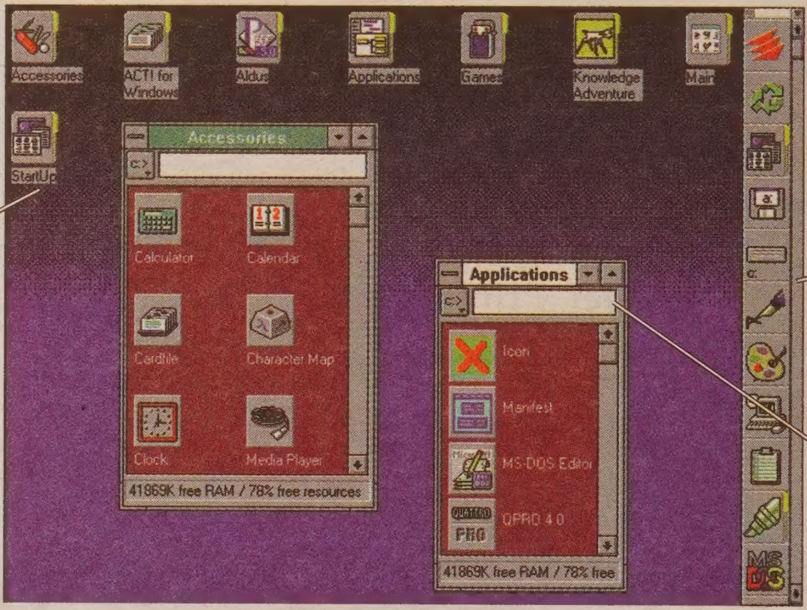
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